

BUSINESS REPORTS

BUSINESS REPORTS

Investigation and Presentation

BY

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PREFACE

EVERY business report presupposes two functions—making an investigation and embodying the information in a written report. This book concerns itself mainly with the second function; it outlines the principles and procedure of presenting information in written form. But because the success of a business report is conditioned to a great extent by the investigation of the business problem preliminary to the writing of the report, the first part of the book is an exposition of the steps of business investigation: analyzing the problem, making a working plan, gathering data, recording data, and analyzing and interpreting data. The second part of the book gives the principles and procedure of presenting the data in a report in such a way as to secure for it a reading and to induce acceptance of its recommendations: making the outline, writing the report, and illustrating the report.

Three purposes have been kept in view: first, to orient the beginner in report-writing as to the nature, function, importance, characteristics, elements, and types of business reports; second, to teach him a method of making investigations and of writing reports which can be applied in the preparation of Informational or Analytical Reports in any branch of business; and third, to give the person seasoned in report-writing more appreciation of the value of clearness, conciseness, persuasiveness, and pictorial presentation of facts and data in getting his reports read, understood, and acted upon.

The need for such a book became apparent to the authors as they sought directions on the investigation of business problems and the writing of business reports when engaged in research for advertising agencies and in the making of market analyses for manufacturers, as well as while teaching report-writing to college of commerce students.

The book should be helpful to the director of research in any firm in coordinating the efforts of his staff; to the executive who wishes all reports submitted in readable form; and to the teacher who, by putting into the hands of students the prin-

chusetts, A. H. Nicoll, Advertising Secretary; General Electric Company, Schenectady, New York, H. D. Sanborn; Swift and Company, Chicago, Illinois, A. T. Kearney, Manager Commercial Research Department; J. Walter Thompson Company, Chicago, Illinois, H. C. Campbell, Director of Research; The United Gas Improvement Company, Philadelphia, Pennsylvania, G. W. Curran, Secretary; Stone and Webster, Chicago, H. G. Bouscaren; Williams and Cunnyngham Advertising Company, Chicago, Illinois, Bradley P. Williams.

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BUSINESS REPORTS

CHAPTER I

NATURE AND SCOPE OF BUSINESS REPORTS

I. Definition—II. Purpose of the Report—III. Range of Subject Matter—IV. Research Objectives—V. Origin and Development of Business Reports—VI. The Importance of Business Reports—VII. Problems of Business Reports—VIII. Requisite of Man Who Writes Reports.

A distinguished man in the field of advertising, writing on the subject of *The Making of Reports* made known, in two statements, their significance to every person in the field of business.

Of the employee, he says, "Many a very able employee has failed to advance himself properly for the simple reason that his reports have not done him justice"; of the executive, "Any executive may, therefore, profit by improving his technique in rendering his reports on executive work and responsibilities." Why he made these statements becomes apparent when one considers the nature, purpose, origin, and variety of business reports.

DEFINITION

A report, as defined by Webster, is an "official statement of facts." As used in business, it records the past, reflects the present, or forecasts the future. It records the past when it makes daily, weekly, monthly, and yearly reports incident to the conduct of business. It reflects the present when it is a digest of all available data necessary in forming a judgment or in making a decision. It forecasts the future when, after bringing to light certain data fundamental to a thorough understanding of a subject, it contains inferences and recommendations on the basis of these facts. The term is sometimes applied to

an oral account of facts; sometimes to a more carefully planned written account in letter form marked by the characteristics of letters,—it more often applies, however, to a formal written presentation in a pretty well standardized form of the analysis of a business problem, the facts concerning this problem, their significance in solving it, and their solution.

PURPOSE OF THE REPORT

The purposes of business research and that of business reports are inseparably combined. That of research is to secure basic data which will be an aid to business efficiency. One might suppose that executives who had controlled and operated a business for many years would know all that is to be known about it; yet they usually know only a small per cent of the facts. The research worker is the magician who now solves problems with facts rather than opinions. His motto is, "Know the truth, for the truth shall prevail."

The purpose of the report is the same as that of all professional writing: to carry conviction, to bring others around to a point of view, and to persuade them to adopt the course which the writer advocates.

The report is the connecting link between the investigation and any action, supposedly improvement, that may be taken. An investigator may visit enough druggists and cigar dealers to justify the statement that 87.48 per cent of the total number of dealers interviewed are doing half or over half of their cigar business on advertised brands.

The investigator may find that between 62 per cent and 63 per cent of each class of dealer predict a decline in sales as a consequence of stoppage of, or diminished advertising. Unless, however, these facts are presented to cigar manufacturers by an oral or a written report, manufacturers will not increase their sale of cigars through advertising; nor newspapers increase their sale of space to cigar manufacturers. The report by showing the meaning of facts and opinions gets these acted upon.

RANGE OF SUBJECT MATTER

The subject matter of business reports is as broad and varied as business itself. On the advisability of rearranging the office

furniture for greater efficiency to the consolidation of huge corporations, executives demand reports. Problems, both major and minor, in finance, production, management, and sales take their turn at demanding investigation with the subsequent results presented in report form.

Asked about the number of reports used in his business, the average executive's list may be small, which is usually indicative of oversight as to research possibilities in not only his own firm but in the business of other firms.

Much cooperative research is done today, which is usually of great help to the smaller concern. Small firms go together and exchange data, or pay the salary of a research worker, each firm to have access to the results.

A consultant at an advertising agency is really an agent of cooperative research because he is giving his latest client the benefits of his experience with others. Some life insurance research bureaus are supported by different companies. Traveling supervisors aid cooperative research by the knowledge they accumulate.

Cooperative research is perhaps most effective when organized by non-competing firms, or in work on raw material and uses of a product.

So wide is the range of business research that its boundaries may not be easily defined. It includes a vast field and requires the study of innumerable geographic, social, economic, racial, and other factors. Not every business has a research laboratory or a research department. Much experimental work has been undertaken by small concerns. In the trusts, resulting from mergers in many lines of industry, "research has become so irresistible a force in the hands of powerful aggregations that the road is very rough for the little fellow."

Printers' Ink is responsible for the statement that there are 143 research laboratories available to manufacturers. The Bureau of Standards, the United States Department of Commerce, and the Chamber of Commerce have been able to accept only a comparatively small part of the number of problems submitted by commercial concerns. Business research is conducted by individual business firms, by trade associations, university bureaus, outside research men, and by one man trained in an organization.

RESEARCH OBJECTIVES

To the executive who has not developed his research objectives to the fullest or who does not realize the range of research possibilities, the following rather comprehensive list of research objectives may prove suggestive.¹

Operating Researches

1. Study of unit costs of general factors, such as the unit cost of handling each order.
2. Analysis of cost of hiring and firing.
3. Analysis of cost of writing letters.
4. Analysis of the size of orders.
5. An investigation of why customers or accounts are being lost.
6. Study of tendency curves in various elements which make up the operation of business.
7. An analysis of the proportion and kind of prospects turned into customers.
8. Inquiry into the nature of credit losses, or the finance of customer purchases.
9. An analysis of consumer attitude.
10. Rigid technical study of competitive goods.
11. Economic inquiry into dealer or jobber status.

Research and the Purchasing

1. Correct attitude toward sales solicitation.
2. Purchasing methods and the organization of a purchasing department.
3. Purchasing systems and forms.
4. Relation of purchasing and budget plans.
5. Terms, discounts, and financing of purchases.
6. Retail purchasing, special problems.
7. Wholesale purchasing, special problems.
8. Railway and public utility purchasing and special problems.
9. Manufacturing purchasing, special problems.
10. Purchasing science in relation to basic tendencies and general business conditions.
11. Buying on the speculative basis.
12. Purchasing policies and principles.
13. Losses, turnover, and profits in relation to purchasing science.
14. Purchasing standards, inspection methods, and systems.
15. The promotion of economy and education of department heads.
16. Centralization of purchase and its possibilities and limitations.

¹ MATHEWSON, PARK, "Research and Analysis for Executives," *Administration*, 5, p. 13, January, 1923.

Some Specific Lines of Labor Inquiry

1. Analysis of extent and causes of labor turnover.
2. Study of housing conditions in relation to the efficiency of the worker.
3. Analysis of suggestion box methods.
4. Service and bonus plans—for attendance, punctuality, and application.
5. Pay-roll methods.
6. Analysis of scientific management systems, comparisons and deductions.
7. Time-study methods and applications.
8. Studying of routine work in factories for labor efficiency.
9. "Industrial democracy" methods (methods of sharing in management).
10. Employment test methods.
11. Employment department operations.
12. Factory cost accounting methods and principles.
13. Relation between production sales department.
14. Standardization of shop instructions.
15. Health and hygiene factors.
16. Fatigue and rest periods.
17. Various forms of shop organization.

Office Management Problems

1. Methods of laying out offices for highest efficiency.
2. Filing methods best adapted to business.
3. Training of employees.
4. Setting standards for routine work.
5. Increasing efficiency of correspondence.
6. Methods of operating stenographic or dictation machine departments to satisfy executive needs and peculiarities.
7. System methods and forms.
8. Symbolic systems.
9. Testing and inquiry into office equipment.
10. Standardization of equipment.
11. Efficiency conferences and committee methods.
12. Efficient handling of incoming mail.
13. Best methods of handling callers—solicitors.
14. Comparative tests of fountain pens and slip pens in office use.
15. Lighting and ventilating methods.
16. Bonus and contest plans for office workers.
17. Tests for employment for various types of office workers.
18. Office work speed,—methods of measuring and increasing.
19. Methods of breaking in and following the record of new employees.
20. Time studies and scientific management in office work.

Useful Types of Advertising Research, Technical Researches, and Marketing

1. Methods of profitably fixing advertising appropriations.
2. Comparative strength of various types of media for specific uses, also of individual media in groups.
3. Effects of a campaign of advertising.
4. Tests and analysis of proposed alternate series of advertising.
5. Consumer investigations to check up the strength of various appeals and arguments.
6. Study of dealer attitudes toward advertising.
7. Comparative study of various forms of "dealer help."
8. Tests and researches on trade-mark names, name confusion, etc.
9. Studies of reactions and preferences in regard to packages, shapes, labels, etc.

Advertising Executive Management Problems

"In advertising, there are more points of contact, more units to deal with, more unknown factors, more uncertainties, and more arts and sciences, methods, media, and tools involved in advertising than in perhaps any other division of business. Owing to the controlling nature of sales strategy over all advertising plans, merchandising researches have been considered more immediately important."

Advertising Research

1. Analytical study of responsiveness to advertising by different classes and types of people.
2. Study of the reading habits of various types and classes of people.
3. Investigation of the relative efficiency of argument in advertising and the indirect appeal.
4. Inquiry into the nature and extent of the loss of advertising effectiveness because of increased volume of advertising.
5. Psychologic suggestiveness of various types of colors, sizes, shapes, etc., in advertising.
6. Nature and operation of good will, reputation, and prestige.
7. Cumulative effect in advertising ratio and length of time to development and of disappearance after cessation of advertising.

ORIGIN AND DEVELOPMENT OF BUSINESS REPORTS

Business, as the title of the preceding outline indicates, is concerned with three processes: production, operation, and distribution. In its simplest form, all of these processes were carried on by one man. We know that originally a man produced a commodity, took it to his neighbor, and exchanged it for other

commodities. No money entered into the transaction. Incident to the carrying out of these operations, there was planning and acting, for the man who manufactured anything had the problem of deciding what his neighbor would want, whether or not he could make it, and what he would be willing to take in exchange for it. Since, however, the same mind planned and executed, there was no need for records, plans, or forecasts to be put into writing.

We can conceive, however, of the necessity for some method of making records, as soon as he served many neighbors, or needed to wait for payment. He would then be concerned with how many people would want the commodity he made. What variation in the commodity would result from differences in people? When would different people require it? When would each buyer pay for it and in what form would he pay? Of these various facts, or estimates, some record needed to be made. One man would find it difficult to keep all the details in his mind incident to producing, operating, and distributing. Likewise today, when business becomes so complex that it is necessary to shift responsibility to others, investigations and reports are necessary to coordinate the functions formerly inherent in one man.

There grew up the necessity of putting down on paper all details incident to the performing of these functions. The result is a business report.

The market, which in the fundamental was a neighbor, has become a study of trade and business conditions, crops, money markets, new inventions, developments in trade customs, style, transportation, and weather conditions. It has become a study of advertising and selling, with their many departments and processes.

Production, which was once a man and what he could make, has become a matter of efficiency of employees by profits, departments, and percentages on standards of work and conduct. It has become a matter of correlating sales and production, of knowing production by amount finished, underway, and not started; by time lost; by total cost; by unit cost; by labor cost—direct and indirect—and by material cost.

The method of payment for a commodity, no longer a mere exchange of commodities, involves a knowledge of sales, by

territories, and by accounts overdue. It involves a knowledge of collections by total percentage of sales and by territories.

Each function of business has multiplied, and given rise to individual investigations and reports.

THE IMPORTANCE OF BUSINESS REPORTS

The executive has three ways in which he can obtain uniform action concerning work under his jurisdiction: by personal observation; by contact with subordinates; and by use of reports.

Reports free time from detail. They do this by presenting to him, in the briefest possible form, only the necessary facts on which to base his decision and to enable him to be singled out for the position of leadership in his organization. Reports are, in truth, a long step toward simplifying management, and they have been applied to almost every phase of production and distribution as well as transportation and governmental activities. The report is one of the special technical-services to which management has resorted to aid in its functioning in matters of development, organization, and reorganization. Especially are the details of operation minimized by the uniformity and completeness of records kept.

For example, Judge Gary controlled his whole system by this means, as the following quotation makes clear:

"He discovers what new ideas are going to lead into by having investigation made by experts, and on the facts found by experts he forms his judgments. Every policy is thus determined. Affairs thus come to him in report form, although usually supplemented by the personal narrative of the investigator. He does not actually go on the ground. If he attempted to see, in person, what was going on in every branch of the steel corporation, he would be traveling two-thirds of the year and would lose his perspective."²

In the same tenor writes another executive:

"In keeping track of the work of this company, I rely principally upon monthly records and upon specially summarized reports made up every five or ten days,"³

said John J. Porter, first vice-president and general manager of the Security Cement and Lime Company of Hagerstown, Maryland.

² EIGELBERNER, J., "Industrial Management," Vol. 70, p. 214.

³ *Ibid.*

In the field of research, the value of a good report, embodying the results of an investigation, is that people act on facts, the executive more constantly than other people because almost all of his work is the solving of problems.

To the executive, the report constitutes the investigation. The research work is important to him only in proportion to what is given him. It brings to him a clear, readable summary of the material put together, analyzed, and embodied in conclusions. Its success depends upon its being a correct and an adequate interpretation. The report is as important to business as is the research.

The recognition of the importance of research embodied in reports, especially in the field of distribution, is stated by W. B. Edwards of the Dennison Manufacturing Company:

"Twenty years ago, a manufacturer was proud to show how little he spent in records and accounting. He seldom dreamed of such folly as experimental research. Today, millions are spent annually and saved many times over. We are now proud of the kind of overhead of which each dollar points the way to a saving of \$2 or \$3 underfoot. I have not the least doubt that in the whole field of distribution millions will be spent for records and analysis and experiments within a few years and that those millions will be, in the early years, at any rate, even more profitable than those of manufacturing."⁴

In no field of business has the importance of a good report been more appreciated than in banking. Bankers use investigations as preliminary to financing. Reports reveal the true facts of past operations from a comprehensive point of view and give some basis for forecasting the future of the business over the life of the security issues. In summing up, business reports are important because they are comprehensive aids to control and judgment in management. They are important because the man who draws up a report "starts things." Facts are dynamic. They accomplish wonders when uncovered and brought into a strong contact with people who ought to be interested in them. They usually do their work if they reach the attention of people who have the power to act upon them. And finally as records, reports make available knowledge at the

⁴ EDWARDS, W. B., "A Modern Cato Mounts the Rostrum," *Printers' Ink*, Feb. 16, 1928, p. 113.

time it is needed. They assist in mankind's progress by furnishing accurate experience in permanent form which may be consulted quickly.

PROBLEMS OF BUSINESS REPORTS

As soon as the writer of a business report knows the purposes to be accomplished and the factors in the situation to which they must be adapted, his problems become clearly defined. The problems are to secure a reading for the report, to make the message clear to its recipient, to convince, and to present the message and evidence in such a way that it will attain the desired result. Means of solving problems are explained in detail under presentation of the message.

At this time, it is sufficient to say that reports will be read if their appearance invites a reading, if the subject matter and its presentation are interesting. The report will be clear if, in addition to observing the usual rhetorical principles for clearness, it is adapted in subject matter and language to the information and intelligence of the person to whom it is submitted. It will be convincing if the facts are accurate, the opinions authoritative, and the references logical. The quantity of facts and opinions also enter into the believableness of conclusions. The report will be acted upon if it is presented with concern for persuasiveness, which takes into account what is said, the order of presentation of material, the spirit of the report, and the choice of diction,—diction that is always ordering a reader's emotional reactions to what is presented as certainly as it affects what he is thinking.

REQUISITES OF THE MAN WHO WRITES REPORTS

The firm that carries on research always confronts the difficult problem of finding a man with the right temperament, training, and ability. In selecting a good research man, the firm might well begin the process by eliminating from consideration a person with prejudices arising from temperamental weaknesses, such as giving way to one's feelings, radical tendencies, negative attitude, obstinacy, and intolerance, prejudices arising from an over-active imagination manifesting itself in failure to observe facts just as they are and to present them without personal bias.

When research men have been eliminated on the basis of characteristics that incapacitate them for success, there are a group of positive characteristics that qualify them, such as, common sense, commercial sense, accuracy, and intelligence in gathering facts, care in analysis, and logical mind. Those qualities make possible ability to classify, to analyze, and to draw inferences from facts gathered. No trait of a successful research man is more to be emphasized than initiative. Only this trait will make him alive to the appearance of something strange and unexpected, which may yield valuable results entirely foreign to the original objective. Only a knowledge of human nature will allow him to present what he finds effectively.

Experience and training are of utmost importance to the person who makes an investigation and embodies the results or presents conclusions in the form of a report. Such a man must have the ability to break up a subject into elements, to estimate which are vital and which are less essential, and how much time and money should be spent on each. In scheduling time and cost, the inexperienced investigator is very much at a loss; in fact, he is quite incapable of anything more than a guess. Adequate and searching data about business are not as a rule furnished by immature employees—they can best be secured through research under trained minds with ability to look below the surface. In interpreting data correctly, commercial sense and a very substantial acquaintance with actual business practices in the industry under examination are necessary for the man to be able to interpret data correctly in widely different parts of the field. To write a good report, a man should have training in analysis and the ability to reconstruct his analysis into conclusions that are helpful in the merchandising sense. He needs merchandising experience beyond what the statistician possesses.

In addition to his business training, he needs thorough acquaintance with a wide range of published material. He needs to be acquainted with libraries to know them.

Someone has said that the man is more important than the method in business research. He is at least as important as the method on which progressive business is depending to make almost every operation in business profitable.

CHAPTER II

ELEMENTS OF BUSINESS REPORTS

I. Outline of Elements—II. Definition of Elements: A. Cover; B. Title Page; C. Copyright Notice; D. Letter of Authorization; E. Letter of Acceptance; F. Letter of Transmittal; G. Letter of Approval; H. Table of Contents; I. Tables of Charts and Illustrations; J. Foreword and Preface; K. Acknowledgment; L. Synopsis; M. Body; N. Appendix; O. Index—III. Illustrations of Elements.

Before discussing the characteristics and types of business reports, it is well to have a bird's-eye view of the elements which commonly go to make up the more elaborate reports. Short, informal reports are merely adaptations of the formal type, designed to fit particular purposes.¹

OUTLINE OF ELEMENTS

An outline of a rather complete formal report contains these elements:

- I. Cover.
 - II. Title page.
 - III. Copyright notice.
 - IV. Letter of authorization.
 - V. Letter of acceptance.
 - VI. Letter of transmittal.
 - VII. Letter of approval.
 - VIII. Table of contents.
 - IX. Table of charts and illustrations.
 - X. Foreword
 - XI. Preface
- } Usually combined. Sometimes included in the Letter of Transmittal.

¹This chapter is not intended for an exhaustive study of the elements of a report, but merely for the purpose of definition and examples, so that the reader will have a brief perspective of a complete report before proceeding to the separate units.

A complete discussion of these elements by units—their use and content—will be found in Chapters XIII–XV, “Writing the Report.”

- XII. Acknowledgment { Frequently combined with the Foreword and Preface, and sometimes in the Letter of Transmittal.
- XIII. Synopsis.
- XIV. Body.
- A. Introduction.
 - B. Text.
 - C. Conclusions and recommendations.
- XV. Appendix.
- XVI. Index.

DEFINITION OF ELEMENTS

To prevent repetition of material in the chapters on *Writing the Report*, only such explanation of these elements will be given here as are necessary to make their meanings clear.

Cover—The cover contains the title of the report in as short and usable fashion as possible, so as to make it easy to grasp, and to facilitate the work of the librarian. It also contains the name of the author, and frequently the place and date of publication.

Title page—The purpose of the title page is to tell definitely and concisely what the report contains, set out in a manner to attract the attention of the reader, to give the librarian a clue in filing, to indicate the author, his rank, and where the work was done.

Copyright notice—If the report is copyrighted, this notice usually appears on the second page.

Letter of authorization—Frequently a formal report will contain the original letter of authorization, which caused the report to be prepared, and which may contain instructions for procedure. A reprint of a legislative act authorizing a piece of work sometimes serves as the authorization although not in letter form.

Letter of acceptance—A copy of the letter of acceptance is occasionally incorporated in the report so that it may serve as a record, especially when the commission has been fulfilled conditionally.

Letter of transmittal—The letter of transmittal is usually brief, transmitting the report. It can be formal or informal, according to the style and nature of the work, but it is usually more personal than the body of the report.

Letter of approval—When the report goes through the hands of a superior officer, he may add a letter of approval before passing it ahead. Merely signing the report in a designated place may serve the same purpose.

Table of contents—The table of contents is an outline of the report from the beginning to end, showing major and minor heads or divisions, and frequently subdivided three or more places in the more elaborate reports.

Tables of charts and illustrations—Such tables are used in reports that have a large number of charts and illustrations to insure ease in finding.

Foreword and Preface—Practically the only difference seems to be in terminology. They may be used together when written by different people, as when one organization has requested another organization to prepare a certain report. Since the purpose of the preface and foreword is to set forth certain reasons, needs, etc., it is clear that both organizations in the above illustration would have occasion to write briefly, one to introduce the whole idea, and the other to introduce the report proper.

Acknowledgment—Necessary acknowledgments are frequently of such varied nature that it is desirable to devote a page to this purpose, rather than introduce them into the preface or letter of transmittal and thus make these of undue length.

Synopsis—The synopsis condenses outstanding features and results of the report proper for the busy reader, or for the layman who would have no interest in the longer, detailed, and oftentimes technical report.

Body—The *introduction* to the text of the report contains such material as authorization, historical sketch, purpose, scope, apparatus, and methods.

The *text* of the report is the presentation of the interpreted data.

Impartial *conclusions* based on the facts developed in the body of the report are presented either at the beginning or end, and these may be followed by *recommendations* for further action which seems to the writer to be justified by the conclusions.

Appendix—Supplementary material referred to in the report, but either too bulky or with too indirect connection to be included in the body, may be placed in the appendix for the

purpose of reference. This includes such material as long tables, quoted articles, large number of charts, and bibliography.

Index—In long reports an index of material saves much time in finding certain sections.

ILLUSTRATIONS OF ELEMENTS

For the purpose of giving a definite idea of the nature of each element in a formal report, illustrations are given for all except charts and illustrations, the body and the appendix, which, by their nature, do not lend themselves to short, illustrative material. They are discussed at length in Chapters XII–XIV.

Letter of Authorization

April 21, 1926.

MR. CHAS. C. ULRICH,
Correspondence Supervision
Department.

DEAR MR. ULRICH:

On January 1, 1926, we instituted a campaign to improve the correspondence of the Colombo Company. The campaign, I know, has been successful; therefore, we are now desirous of knowing the present state of affairs in the correspondence department.

On Monday, May 3, I wish that you would begin making a report on the matter. The report should be fairly complete, and should embrace the conditions prior to the institution of the campaign, the changes in organization made, the success attained, the methods used in instructing the correspondents, the reaction of the correspondents to the campaign, the aims of the campaign, recommendations, and all other pertinent information.

Your present work will be taken over by Mr. Samuel Smithers, and you will devote all your time to the making of the report.

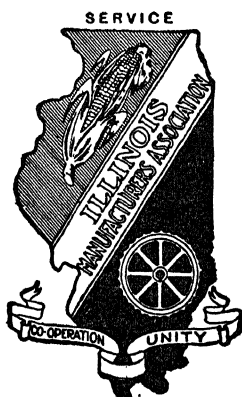
The report will be primarily for the officers of the company, but may be sent also to the stockholders, or may be published in some business magazine.

Yours truly,

H. A. STEELKING,
General Manager.

Administration of Public Funds in Illinois

Remedies Needed by Taxpayers



ILLINOIS MANUFACTURERS' ASSOCIATION

231 S. LaSalle Street

CHICAGO

TITLE PAGE

Better Business Through Research

IN NEW ENGLAND INDUSTRY



INTRODUCTION AND
SUMMARY OF FINDINGS

Prepared for the
Research Committee of the NEW ENGLAND COUNCIL
By the POLICYHOLDERS SERVICE BUREAU
METROPOLITAN LIFE INSURANCE COMPANY
Pacific Coast Head Office HOME OFFICE Canadian Head Office
San Francisco NEW YORK Ottawa

Interorganization reports usually have blank spaces provided on the cover to indicate certain contents and to aid in proper filing. Covers vary from light paper backs for reports that are soon filed and not handled frequently, to expensive cloth bindings.

Letter of Transmittal

October 1, 1926.

Mr. Oliver C. Billings, *Chairman* *
Committee of Arrangements
New York Stock Exchange

DEAR SIR:

I have been asked many times in many states for an outline of the "Human Relationship Policy" of the New York Stock Exchange. Mr. Seymour L. Cromwell, while president of the Exchange, made the statement that our first obligation was "to make good citizens." Our president, Mr. E. H. H. Simmons, in an address published last year, said, "The employment of the youth of this country is a sacred and patriotic trust."

It is safe to say, therefore, that the motivating spirit in all the human relationships existing between employer and employee at the Exchange is based upon the above statements.

In presenting for your consideration the accompanying report of the activities of the year, an effort has been made to include only such subject matter as might be of interest to the members of the Governing Committee, members of the Exchange, and others who may be interested in the problems of human relationship in business and industry.

The educational policy of the Exchange in relation to the employment of juniors has proven to be far-reaching in the development of an efficient staff of employees. Since the adoption of the policy six years ago the number of high school graduates on the Floor has increased from one to two hundred and sixty-eight. During the past year sixty-nine percent of our employees attending evening schools were enrolled in schools or college of university rank.

The New York Stock Exchange Institute for employees has shown a substantial growth. Mention should be made of the hearty cooperation of many Governors and members of the Exchange and leaders of affairs in the financial world who have lectured to the students on the work of the Stock Exchange and Investment Banking.

The personal interest of the Governors of the Exchange in the welfare of the employees has been appreciated by them, as evidenced by their faithful and loyal service.

The Personnel Department wishes to acknowledge its appreciation to the President, the Committee of Arrangements, the members, the officers, and to the employees for their cooperation during the year.

Respectfully submitted,
CAMERON BECK,
Personnel Director.

* Report of the Personnel Department, 1925-26.

Letter of Transmittal

Department of Commerce *
Bureau of the Census
Washington, D. C., October 15, 1927.

SIR:

I transmit herewith Census Bulletin 162, which is a report on the production of cotton from the crop of 1926 and the consumption, imports, exports, and stocks of cotton and number of cotton spindles and active spindle hours for the year ending July 31, 1927, and cottonseed received, crushed, and on hand and cottonseed products manufactured, shipped out, and on hand for the same period. The data were collected and compiled by the division of Cotton and Tobacco Statistics under the supervision of Harvey J. Zimmerman, specialist in charge.

The report is presented in several sections: (1) supply and distribution of cotton in the United States; (2) annual production of cotton and linters in the United States, as returned by ginners and delinters, distributed by states, from 1923 to 1926, inclusive, with production for previous years; (3) consumption and stocks of cotton and number of cotton spindles and active spindle hours in the United States for the year ending July 31, 1927, together with detailed statistics of spindles, cotton consumed and cotton on hand, including comparative figures for previous years; (4) imports and exports of cotton for the year ending July 31, 1927, with comparative figures for previous years; (5) world's production, consumption, and stocks of cotton and number of cotton spindles by countries for the season of 1926-27; and (6) cottonseed received, crushed, and on hand, and products manufactured, shipped out, and on hand for the year ending July 31, 1927, with comparative data for earlier years.

In conformity with the act of Congress approved April 2, 1924, there were published during the season of 1926-27, 12 preliminary reports of cotton ginned to specified dates and 12 reports giving for each month statistics of the quantity of cotton and linters consumed, the quantity on hand in consuming establishments and in public storage and at compresses, the quantity imported, the quantity exported, the number of active consuming cotton spindles, and activity in the cotton spinning industry. The statistics of imports show the countries of production, and those of export, the principal countries to which exported. The present record gives the aggregation of the statistics included in the preliminary statements. There were also published during the past season 12 preliminary reports of cottonseed received, crushed, and on hand, and of cottonseed products manufactured, shipped out, and on hand, in compliance with the act of Congress approved August 7, 1916.

WILLIAM M. STEUART,
Director of the Census.

Hon. Herbert Hoover,
Secretary of Commerce.

* Cotton Production and Distribution, Bulletin 162, Department of Commerce.

Letter of Transmittal

August 19, 1924.

* To the honorables the Secretary of War, the Secretary of the Navy, the Secretary of Commerce:

The National Screw Thread Commission, having revised its Progress Report, dated January 4, 1921, herewith submits its report revised 1924, for your acceptance and approval, in accordance with Public Act No. 201 (H.R. 10852, 65th Cong.), approved July 18, 1918; as amended by Public Act No. 324 (H.R. 15495; 65th Cong.), approved March 3, 1919; Public Resolution No. 34 (H.J. 299, 66th Cong.), approved March 23, 1920; and Public Resolution No. 43 (H.J. 227, 67th Cong.) approved March 21, 1922.

GEORGE K. BURGESS, *Chairman.*

E. C. PECK, Lieut. Colonel, U.S.A.

J. O. JOHNSON, Major, U.S.A.,

Appointed by the Secretary of War.

M. A. LIBBEY, Commander, U.S.N.

JOHN B. RHODES, Commander, U.S.N.,

Appointed by the Secretary of the Navy.

F. O. WELLS.

RALPH E. FLANDERS.

Appointed by the Secretary of Commerce from nominations by the American Society of Mechanical Engineers.

EARLE BUCHINGHAM.

GEORGE S. CASE.

Appointed by the Secretary of Commerce from nominations by the Society of Automotive Engineers.

* Report of the National Screw Thread Commission, Bureau of Standards, No. 61.

An extremely formal type of letter common in governmental circles when the chief duty is to serve as a record.

Letter of Approval

October 2, 1924.

The attached report prepared by the National Screw Thread Commission, in accordance with the law establishing the commission, Public Act No. 201 (H.R. 10852, 65th Cong.), amended by the Public Act No. 324 (H.R. 15495, 65th Cong.), is hereby accepted and approved.

JOHN W. WEEKS,
Secretary of War.

CURTIS D. WILBUR,
Secretary of the Navy.

HERBERT HOOVER,
Secretary of Commerce.

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Acknowledgment *

The New England Council has recognized the need of demonstrating the extent to which research has been employed by New England industry. It was believed that, in the solution of everyday problems, practical illustrations of research would stimulate the adoption of improved management, manufacturing and marketing methods designed to increase the profitable sale of New England goods.

At the suggestion of the Research Committee of the Council, a thorough investigation of this nature was made by the Policyholders' Service Bureau of the Metropolitan Life Insurance Company. The results are being published in a series of reports dealing with the application of research to sales, production and employment stabilization. In the following pages an effort has been made to present a résumé of the findings.

The Research Committee, on its own behalf and on behalf of the New England Council, desires to thank the Metropolitan Life Insurance Company for this important and constructive service. The Committee believes this will be a very much worthwhile contribution toward the welfare of New England business and wishes personally to thank Mr. Haley Fiske, President of the Metropolitan Life Insurance Company, and his associates, whose splendid spirit of cooperation has made these results possible. To the New England industrial executives, who have so freely contributed of their time and experience to the Metropolitan's field investigators, the Committee is also grateful.

RESEARCH COMMITTEE OF THE NEW ENGLAND COUNCIL

A. LINCOLN FILENE, *Chairman*,
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ROBERT E. HEALY,
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at-Law,
Bennington, Vermont.

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Foreword*

The Industrial Committee has had repeated calls for a simple text discussing briefly the problems involved in woman labor and the various legal remedies which have been devised for meeting these problems, giving some idea of what the laws should contain and what would be their desired effect. This report is offered in response to those calls.

While the authors have striven in the main for a simple and direct presentation of the subject, having in mind the primary purpose to which the book is dedicated—use among industrial women—they have also had in mind the varied sources of the call for the book. Wherever it was possible to meet the needs of the college student, business man, club woman, social worker or others without detracting from usefulness for industrial women we have felt it was wise to fit the text to the broader use.

In the preparation of this pamphlet, Mr. Trent of Indiana University and of the Indianapolis Chamber of Commerce has given most generously of his time and labor in an editorial capacity—this in addition to permitting liberal and unquoted use of extracts of his war time pamphlet on Women in Industry. We take this opportunity to make grateful acknowledgment of the cooperation Mr. Trent has so cordially extended and to observe that his joint authorship seems to us indicative of new hope for the cause of women in industry and therefore for industry as a whole.

—“Legal Recognition of Industrial Women,” published by
Industrial Committee War Work Council.

* This and the following extract illustrate the possibility of using both a foreword and a preface in the same report.

Preface

The modern industrial system presents no graver aspect than its almost remorseless and insatiable demand for the time, strength and skill of women workers. Into factories and stores, women have gone of late in such numbers, and with such consequences, as to compel public attention and public concern. To set forth the bases of this concern and the practical measures which are gradually being taken or ought to be taken to give expression to it, is the primary purpose of the pages which follow.

For many years students of economics, theorists in the field of industrial enterprise, have warned the public that our women were not receiving the protection which their welfare and the general well being of society demanded. Long hours, lack of rest periods, low wages, unsanitary conditions, and overtime were pointed out as costly privileges in a laissez faire system of economics, and public action in woman's behalf was advised and even urged.

Later the physician and neurologist began to support this position of the economist. The effect of modern industrial processes was studied scientifically. Fatigue was connected with and related to efficiency in no uncertain manner; thus the humanitarianism of the economist and sociologist was reinforced by the practical advice of the medical specialist.

Last of all the intelligent employer has added the weight of his testimony to that of the economist and the doctor. The employer has tried shorter hours, adequate wages, more wholesome conditions, rest periods, and the like; and, how strange! They *pay*. Hence the legal recognition of industrial women has come as a matter of slow but sure progress, supported by the best theory and by actual results in an ever-increasing number of establishments employing women.

For years, I have felt more and more keenly that we all of us are responsible for whatever social injustice characterizes our industrial life, but the lot of our women workers has seemed to me particularly needful of improvement. In an effort to set forth the need and the responsibility, Indiana University last year published my bulletin on Women in Industry. This pamphlet having gone out of print, it has seemed to me both a pleasure and an opportunity for national service to join with Miss Lattimore in a further attempt to make clear the legal ways in which society may begin to mend whatever needs mending in the industrial life of today.

RAY S. TRENT.

Synopsis*

There is a generous distribution of Beaumont face powder among the stores interviewed, which attests to the quality of the product and the esteem in which it is held among the trade. Only four stores were found in which the item is not carried, all being independent drug stores.

Beaumont face powder is not selling among independent stores as well as Vie or Chic, although it seems to be moving faster than Parisienne. But among department stores and chain drug companies Beaumont trails behind the other three.

Moreover, sales of Beaumont appear to be decreasing. Twenty-one independent druggists and one chain company say that there was no noticeable change in 1928 as compared with 1929, but 20 independent druggists and 2 department stores report a decrease. Only 6 stores, all independent druggists, record an increase in 1928 over 1927.

Beaumont is more popular among the better class independent stores than elsewhere. The only reports of increased business of sales greater than those of competing brands come from independent stores that are classified as "good" or "fair."

Among the various suggestions offered by those interviewed to increase the sale of Beaumont powder in Chicago, two stand out prominently. These are (1) advertising, and (2) an improved package.

It is important to observe and respect the modernistic trend in advertising and merchandise display. Many dealers feel that Beaumont is not keeping up with the procession in presenting their product in the smart, new manner; consequently they push the sale of other brands that have accepted present day methods of sales promotion.

There are notable examples of firms who have abandoned conservative, old fashioned methods of display in favor of more novel and bizarre treatments, and who have achieved splendid results in doing so. No manufacturers have adopted the modern style to a greater extent than Beaumont's competitors. Their advertising copy, containers, store displays, etc., breathe the spirit of the age in the lavish use of color, cubist designs, modernistic art, and other features that distinguish today from yesterday in the realm of advertising.

* The names have been changed in this synopsis taken from a Business Survey of the *Chicago Tribune*, 1929.

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CHAPTER III

CHARACTERISTICS OF BUSINESS REPORTS

I. Rhetorical Qualities: A. Unity; B. Clearness; C. Emphasis—
II. Judicial Qualities: A. Accuracy and Completeness of Facts;
B. Precision in Statement; C. Clear Distinction between Facts,
Opinions, and Assumptions; D. Sound as to Conclusions and Recommendations—III. Characteristics Peculiar to Individual Problems.
—IV. Practicability—V. Tone—VI. Salesmanship.

“A report, to have any value, must be read to be comprehended, and it should produce conviction and induce favorable actions. If it fails to interest, if it fails to convince, it is a failure, no matter how thorough may be the research work or how logical the deductions,” writes Mr. Eigelberner.¹

RHETORICAL QUALITIES

These objectives: to secure a reading, to be understood, to gain belief, and to induce action give rise to pretty clearly defined characteristics in the business report. Since the formal report is a written communication, it must be characterized by good rhetorical qualities, judicial qualities, etc., as is all good writing.

Unity

Of these, unity is vital. It means focusing on a clearly defined purpose. Everything included must be pertinent to the problem, and everything pertinent must be included. Unity can be attained in a report if the first steps of the investigational procedure are carefully taken: that of analyzing the problem, of defining it, and of determining its objective. The value of clearly defining the objective is that it guides a person in making an investigation, and when writing a report, in deciding

¹ EIGELBERNER, J., “Investigation of Business Problems,” p. 302, A. W. Shaw Company, Chicago, 1926.

what is pertinent to accomplishing its purpose and what is irrelevant. For example, the unity of a report on an investigation of how to cut down the cost of producing a specific manufactured article, was violated by a section of the report being devoted to proving that another article could be manufactured at less cost.

In securing unity, the report writer is aiming at completeness. He wants nothing less nor nothing more than is necessary to the accomplishment of the purpose of the report. He faces constantly the problem of what amount of detail can be included without making the report tedious or without interrupting too long the reader's train of thought. To achieve unity, any material which has this possibility is put in the appendix. Unity in reports may be violated if so much use is made of statistics that attention is called from the main point to the supporting points.

Clearness

A report is a failure when the main points are not easily comprehended, and comprehension is largely a matter of clearness. Clearness comes from good organization, from arranging the different parts of the report in such a manner that their interrelation will be easily understood, from clear demarcation of sections, and anticipatory and transitional elements. The scheme of arrangement must be decided upon according to the demands of the various subjects of reports. A progress report suggests the chronological order, a market report spatial, and an organization report, the logical. The arrangements of material is often planned on the basis of familiarity, interest, or importance to the reader. The latter may be called the psychological basis.

The source of clearness is careful planning. The plan of the report is, of course, formulated before the draft of the report is adopted. The plan serves as a map for the arrangement of material of the text, and should not be intricate. Clearness in presenting reports, more than in any other type of writing, comes from the use of headings and subheadings, arranged to show the relative importance of points. As in other types of writing, connectives, transitional expressions, and directive devices are used, but less frequently than in other types because

the writers of reports depend upon headings and subheadings to indicate logical divisions.

Clearness in reports comes from their being prepared from the point of view of the reader which may be that of an executive, a stockholder, or the public. Adaptation to the reader may affect arrangement. Many modern reports begin with a summary of findings. Adaptation to a reader may affect the language except when it is to be read by people who have mastered the subject matter and the vocabulary of technical writing. Technical material to laymen must be presented in every-day language. A report too highly technical will fail of course to win the approval of stockholders.

When the report is being written for the public, the language must be as concrete and as simple as is that of newspapers. Lincoln's reaction to people who talked over his head probably typifies that of the lay mind to a report written in technical language. When asked how he acquired his unusual ability to put things plainly, he replied: "When a mere child, I used to get irritated when anybody talked to me in a way I could not understand. I don't think I ever got angry at anything else in my life. But that always disturbed my temper and has ever since. I can remember going to my little bedroom, after hearing the neighbors talk of an evening with my father, and spending no small part of the night walking up and down, and trying to make out what was the exact meaning of some of their, to me, dark sayings. I could not sleep, though I often tried to, when I got on such a hunt after an idea until I had caught it; and when I thought I had got it, I was not satisfied until I had repeated it over and over, until I had put it in language plain enough, as I thought, for any boy I knew to comprehend. This was a kind of passion with me, and it has stuck by me; for I am never easy now, when I am handling a thought, till I have bounded it north, and bounded it south, and bounded it east, and bounded it west."

Emphasis

Emphasis, in a report, calls for evaluating each element in the report correctly and indicating this value by giving it the correct amount of attention. Evaluating facts correctly means that they are given only so much weight as they have value in

accomplishing the object of the report. There is a tendency for the one writing the report to give undue value to facts that have been unusually difficult to get.

Indicating the value of material by giving it the correct amount of attention means that in the presentation of facts, highly important facts will be placed in conspicuous positions in a report, at the beginning for instance, or they will be given more extended treatment than minor points. The report writer also makes use of many mechanical devices to call attention to vital facts.

JUDICIAL QUALITIES

A report must be not only *accurate and complete* as to facts, but these facts must be adequately supported and logical inferences must be deduced from them. All too many conclusions are based upon impressions, although impressions seldom make good proof. Accuracy results, in the first place, from the temperament and training of one who makes the investigation. Some people by temperament are accurate in observation and correct in emphasis; others acquire these qualities. By some they can never be acquired. The accuracy is usually settled before the report is written. It certainly is never more accurate or practical than was the preceding investigation and analysis. Accuracy, in the second place, comes from a careful recording of facts. For example, the estimates of a potential market can vary by millions if an error is made in recording the unit purchase of the typical buyer.

Volume and completeness of data, as much as the character of the data, condition the judicial quality. A wealth of data conveys to the executive the feeling that he is concerned with a substantial piece of research. They make it more likely that his questions are answered; and they give him a pretty good idea of the extent of the labor required in making the investigation. In short, the executive is satisfied that there has been a conscientious collection of data bearing on the problem. He feels the evidence is adequate. It prevents him from experiencing the irritation of material coming to him in the form of supplementary or verbal reports after he has formed an opinion or come to a decision. His confidence in the report must rest upon the thor-

oughness of the survey. Completeness is attained by following the advice "Cover everything that is vital."

For evidence to be adequate, it must also be *precise in statement*. The reader of the following statement taken from a report sent out by a bond house found himself wondering who were the experts that passed upon the property mentioned.

"The site of Bryant Park Building at 42nd Street and Sixth Avenue, New York City, is essentially a dominating location and is regarded by experts as one of the prime pieces of real estate in New York City."

The following piece of writing has the precision, the reserve, the definiteness to illustrate the judicial quality needed in reports:

"Nearly one-fourth of the world's known production of flaxseed during the last few years (Russia and the Balkans excluded) has been grown in the American Northwest. It is peculiarly a product of the Ninth Reserve district. Ninety-six per cent of the American yield in 1918 and 1919 came from North Dakota, South Dakota, Minnesota, and Montana."²

The judicial quality of a report results from a *clear distinction being made between fact, opinion, and assumption*. "A statement of fact is not open to question. A statement of opinion is open to question because it may be false. A statement of assumption is open to question because it may not be reasonable under the circumstances."³ When a statement is made without adequate proof being advanced, the statement can only be accepted as an expression of personal opinion. Yet a report is considerably stronger if definite proof and ample evidence are attached to verify each one of the positive statements made.

The necessity of making the distinctions between statement, fact, and assumption results from every business report containing some unknowns. These unknowns are due to limitations

² From Report of Northwestern National Bank of Minneapolis, Minnesota, 1920 Annual Report.

³ BORDEN, NEIL H., and GLOVER, CHARLES A., "Suggestions on Report Writing," p. 26, Harvard University, Cambridge, 1925.

in time and money or simply because some facts are unobtainable. In the absence of facts, opinions and assumptions will be introduced as evidence in the report. The question arises, then, of making opinions and assumptions convincing. Belief in opinions depends upon who expresses them. In every case the authority for the opinion should be given. Assumptions will carry weight in proportion to the quality of reasons given for making them. It must be remembered that consensus of opinion of experts is almost as convincing as facts by experts.

Finally the report, to have judicial qualities, must be *sound as to conclusions and recommendations*. Those who make reports often invite failure by forming premature judgments. In the first place, they gather unrepresentative and too few facts. Then they jump directly from consideration of a few facts to a hasty conclusion without giving inference a chance to operate independently.

One of the most certain ways of thinking clearly to a sound conclusion is to reason from the general to the particular. This is nothing more than the discovering and the applying of a well-defined business principle to the situation under discussion. For example, many a manufacturer to solve the problem of increasing profit has applied the recognized principle of lowering selling price to get volume of sales which allowed lower unit cost in production. In applying a recognized business principle, it will, of course, always be necessary to analyze the problem to determine whether a given principle is applicable to the specific problem or whether adaptations will have to be made because of specific conditions.

Patience and the application of ordinary principles of common sense are more important to clear thinking than superhuman brilliance or genius. Most of the brilliant and successful work of analysis revolves itself into painstaking, hard-working care, together with the detailed and clear-sighted handling of facts and conditions. In coming to a conclusion, qualities of thoroughness, clarity, logic, orderly thinking, and searching analysis should drive out predispositions to carelessness, mental cloudiness, prejudice, bias, and self-delusion.

CHARACTERISTICS PECULIAR TO INDIVIDUAL PROBLEMS

Factors such as the function of the report, the adaptation to the reader, and exigencies created by time and money impose certain characteristics upon the report.

The *use* to which the report is to be put guides the reader as to what shall be discussed in the report. The function of informing imposes different obligations from that of persuading. The tendency of the man who makes the report is, of course, to include inherently interesting facts, or facts which personally interest him. Phrasing the problem so as to keep the use of the report clearly in mind, will help him to exclude extraneous material, reduce sub-points to their justifiable position, or allow only such mention of them as will suggest that they have been taken into account. For example, as soon as the chief of research of a chain of stores selling merchandise at twenty-five cents, fifty cents, and a dollar learned that, to find out the relationship of any city factor to sales, he had to figure out the sales per counter foot on the main floor of stores opened in a given year under experienced managers in cities of a given size in a given part of the United States, he knew he could depend little or none on the colored maps issued by statistical organizations showing territorial sales conditions based upon percentage of increase or decrease in bank debits over the previous year.

In adapting a report to a reader, the writer will adjust content to the reader's extent of knowledge about the subject matter; the language, to whether or not he is presenting technical information to technically trained people or to the public; and presentation of ideas, to the reader's predisposition to agree or disagree with it. Property owners who had suffered damages from high water caused by a dam would have been irritated to read a lengthy account of their grievances in a report made by an engineer as to whether it would be wiser to protect the property by a sea wall at their own expense or to force the mill which had built the dam to pay for a sea wall. Such property owners would know only too well how much they had been bothered.

In technical and financial reports written for public consumption, there is the constant need for adaptation of language. Here, especially, is it important to remember that what readers

do not understand is useless. It is easy to imagine a report on a public utility full of such terms as kilowatt-hour, high-tension side of a transformer, volts, power, etc. Instead, it is written clearly and simply:

"Potentially, the water power of the country, converted into electrical energy, is capable of turning every industrial wheel and illuminating every street and building in America, but such is the newness of this use of an ancient force that only seven per cent of it is now developed. Water power is a blind and aimless giant unless directed by the help of another force—also ancient, and also transformed by modern methods. That is money power, a force that comes from people themselves, the producers of wealth, whose surplus funds construct the dams and reservoirs and stretch the cables which in turn supply the public with the necessities and luxuries of modern life. As hydroelectric plants transform the currents of our streams into currents of electricity and put them to use, so the financial institutions of the country, as one of their many functions, do their part in transmitting money power into this special modern channel." ⁴

The necessity for salesmanship in reports becomes apparent, as soon as a report is conceived to be a means of inducing action rather than of conveying information. Hence, it must be written for the person who will act upon it, not only for his needs and capacity but also for his wishes. This means that all comment or criticisms likely to be considered unfavorably must be carefully worded. Recommendations can be presented as suggestions. Such words as "must," "it is necessary," etc., give the report a didactic tone. The executive is a human being likely to be swayed to a considerable extent by his emotions. The writer of the report cannot depend upon its being taken at its real value. Getting a reader's viewpoint is perhaps the most important essential of a good report. By so doing the writer makes the way clear to an appeal both to his intellect and emotions.

PRACTICABILITY

Practicability in a report is an essential created by time and money considerations. Business is for profit. An investigation and a report are given first as much time and cost as the person

⁴From the Northwestern National Bank of Minneapolis, Minnesota, 1923 Annual Report, p. 1.

responsible for it thinks will be justified by the results. An expression of opinion from one of our best dividend paying corporations confirms the above theory: "We have never made much of a practice of getting up elaborate reports. The thing our stockholders seem to like best is real profits, and if these come along, they do not demand any further explanation." The time element must be considered when a report must be submitted within a definite time limit, or the amount of time which the reader may give to it is definitely restricted. When a writer has a week within which to complete a report, he must not plan an investigation which will take a month. Over-elaboration, even in the writing of the report without consideration of the limits of the task, results in reaching the expiration of the time with nothing completed except the beginning of a big report.

TONE

The tone of the business report is likewise determined by the point of view of the reader. It must be read by a busy man, often by a man who carries more responsibility and hence has more authority than the writer of the report; and sometimes by a man who has the relation to the writer of client to a person who is rendering professional service. If the object of the report is to inform, the tone of the report is that of cool, unbiased exposition.

The tone of a good report is variously characterized as impersonal, fair, dignified, cheerful, and not stilted. The writer attempts to be advisory rather than imperative or didactic; definite and positive, rather than evasive. The writer in seeking a persuasive tone should differentiate between positively stated recommendations and positive instructions. A weakly stated, evasive recommendation never carries conviction; a definite, positively stated recommendation carries conviction, although it remains a recommendation. The reader of the report must never be permitted to assume from the tone of wording that the writer is assuming his prerogative of making decisions and giving instructions. The report of the tried executive is likely to be quite impersonal. If the report is one the recommendations of which are open to argument, the content and emphasis

may be modified by the relation of the writer to the project upon which he is reporting.

SALESMANSHIP

In adapting the presentation of factors to the point of view of the reader, one who writes a report will sometimes find it necessary to adopt the same tactics as the salesman, especially in the tone; by headings and subheadings; by transitional paragraphs; summary paragraphs; a human and vivid style; the use of charts, graphs, and tables; the arrangement of the report so that whenever the reader desires he may read the conclusions resulting from an analysis without examining all the data on which the conclusions are based.

If the writer has a financial or self-interest in the decision which the report is trying to shape, it is natural for him in gathering data and in emphasizing certain details to influence the decision in his favor or that of the organization for which he works. As the salesman, he must guard against seeking personal advantage in an immediate sale, and hence undermining the confidence of the client. In the final test, a good report must rest upon its own merits. A modest straightforward manner is most appropriate for it.

No attempt is made to explain how the various devices to attain readability are used since they are treated fully in Chapter XII entitled *Writing the Report*.

CHAPTER IV

TYPES OF BUSINESS REPORTS

I. Difficulty of Classifying Reports—II. Basic Classifications: A. Analytical Report; B. Informational Report; C. Technical and Applied Research Reports—III. Classification on Basis of Subject Matter—IV. Classification on Nature of Function—periodic, special, examination, recommendation, progress, improvement, etc.—V. Classification on Basis of Form: A. Memorandum Report; B. Letter Report; C. Short Report—VI. Other Classifications

Just as the rise of any new industry, e.g., radio, brings forth a flood of new terms which must be sorted, arranged, and classified, so has the increasing use of business reports caused a variety of classifications with a consequent lack of agreement as to nomenclature. Many different businesses using reports employ different terms to show adaptations to peculiar phases of their work. The purpose of reports represented by each term is well known within that organization, but frequently has no widespread recognition.

Reports peculiar to a well-known mail order house are divided into—(1) competition—methods of selling, service, repairs, time payments and other distributive factors; (2) advertising or publicity; (3) merchandising—sources of supply, pricing policy, analysis of profits, etc. Another large corporation commonly divides reports into three types—(1) research series, which are rather technical; (2) supervisor series, dealing largely with supervision of salesmen; (3) service series, based on research reports and written to serve as instructions.

DIFFICULTY OF CLASSIFYING REPORTS

This variance in terminology seems quite natural. However, a study of the nature of the reports themselves shows a greater similarity in structure than the different names indicate.

Although the content is different, the structure of a report on methods of selling is about the same as one on sources of supply. Aside from strictly technical reports, it is obviously impossible to classify reports according to content.

Classification of reports depends largely on the nature of the commission and object of the investigation. If each peculiarity of the commission were permitted to influence the classification, obviously there could almost be a different classification for every assignment. It is chiefly because individual characteristics have been permitted to influence terminology that the large number of report types, or so-called types, have come about to cause so much confusing nomenclature.

Naturally, reports for different companies on different subjects and for different purposes vary in arrangement, structure, style, tone, length, and mechanical set up. Much of this variation is caused by the nature of the commission, oftentimes being determined by the needs of a client.

Consequently, we have reports of all types, e.g., period, progress, condition, improvement, special, efficiency, etc., each bearing a different name and with different content but with only a few differences in basic structure and purpose. There are many composite or combination reports which are used when the writer finds it necessary to combine the features of several of the miscellaneous array of types from which he may draw.

In an attempt to classify reports, we find the writer using various bases, such as time, record of past activities, or information for future action; as *arrangement*: form and composition; or as *character of content*: information, examination, recommendation, and progress.

Obviously the question of classification is difficult, particularly so if the classification attempts to care for minute details and peculiarities of each and every business and exigency. However, it does not seem necessary or wise to attempt such a myriad of classifications particularly since many of them overlap in content and style, and since the more minute classifications affect very little the actual research, compilation, and interpretation of data.

BASIC CLASSIFICATIONS

The three basic classifications of business reports under which all types may find a place are the analytical report, the informational report, and the technical and "applied" research report.

Analytical Report

The analytical report will be treated more fully than the other two because it is by far the more complete and comprehensive type, covering as it does everything from the history of the problem through a careful presentation of data to a solution and recommendation. A study of this type of report will take the investigator through all the steps of report writing, from preliminary analysis, working plan, securing data, interpreting data, and drawing conclusions, to the actual organizing and writing of the report; while a study of the other types would either start later or end sooner in the report procedure.

A purely analytical report presents in its completeness a discussion of the past, present, and future of a subject. The future is usually in the form of recommendations or detailed suggestions for a solution to the problem under investigation.

Other types draw what is needed for individual cases. For example, a condition report frequently uses all the steps of the analytical report through conclusions, but makes no attempt to suggest a definite solution. Others omit much of the early investigation, depending upon general experience or knowledge to move the starting point further down the line.

Informational Report

The informational report presents a subject in detail without criticism, argument, or recommendation. It makes no attempt at a solution, but confines itself to past and present information. The material included in the informational report is frequently based on the use to be made of it, and on the characteristics and intelligence of the person using the report.

Being a fact finding report, the informational type is largely devoted to a statement of results. Daily, weekly, and annual reports are chiefly informational, presenting certain facts with no attempt at interpretation. A financial statement is an informational report in the sense of setting forth certain accurate

facts without comment, although it would carry much more information to the average reader if there were some attempt at explanation.

In business, the informational report is usually, though not always, for immediate practical purposes.

The informational report usually comes with regularity, although it may be by special request. Coming with regularity—sometimes called a periodic report—it will give events, interpret them, and explain results of operations over a certain period. Reports of officers to stockholders are examples of this type.

Informational reports will frequently, though not necessarily, start as far back in the report procedure as the analytical. For instance, historical background may or may not be of interest in a report designed to furnish information over a definite period. But where the analytical report goes on into the future, the informational report is content to give only a statement of findings up to the present time.

Like the analytical report, the informational is determined by the nature of the commission in business reports, and by the purpose in scientific reports.

Technical and “Applied” Research Reports

The technical research report is an investigation of conditions, usually of the physical characteristics of matter, such as strength of materials, or quality of materials, not connected with any immediate problem. Emphasis in this type of research is placed on looking for new things and developing new ideas, not necessarily for immediate practical purposes. Engineers are continually doing research and submitting reports, the results of which may be used at an indefinite time.

Research reports present the results of an extended study or analysis, usually with interpretation and elucidation of findings, and general conclusions, but with no definite recommendations. They are more impersonal than other types. Some include conclusions and recommendations thus encroaching on the analytical report.

The research report is a distinct type only in its pure form, that is, when emphasis is placed on looking for new things and developing new ideas, regardless of when they are to be used. The purest research is in the technical fields.

In commercial fields, the research report is usually on "applied research." It endeavors to give all reasonably available data on a given restricted subject in convenient, comparative form, usually for immediate practical purposes. Applied research is sometimes facts and conclusions established from observation and uniform opinions, unless they can be substantiated in some other manner. Of course there must be a consensus of opinion to make them valuable, and even then the results can not be as authentic as those of pure research based on actual and accurate testing of facts.

Playing an important part in applied research is the human element which can never be accurately determined. The number of people passing a store can be counted, but the intent of those people can only be estimated; the physical well being of the workman may affect production in a way that cannot be figured by test tube and retort.

Applied research, as used in marketing for example, is an investigation of tendencies by a sort of "sampling method," usually employed with the idea of more immediate gain than in pure research.

Research reports, as applied to business, is getting as complete facts as can be discovered, study being made of fundamentals, available data, experience and opinions of others, and interpretations of situations as one sees them. They are often influenced by the nature of the commission, while in pure research the purpose of the investigation is the sole determining factor.

Applied research often starts with a need, and a search is made for data to help solve the problem. The need may come in the form of a request from some department.

Although industry employs many scientists, most of them are always seeking methods of applying the results of their technical research to the immediate or future use of business.

Unless dealing with subject matter of technical nature, business research reports are prepared and presented in the same manner as the analytical type.

CLASSIFICATION ON BASIS OF SUBJECT MATTER

Reports naturally vary somewhat with the change in subject matter characteristic of different fields of research. The more common divisions on the basis of subject matter are: financial, engineering, organization and efficiency, marketing, governmental, social, and educational.

However, the same basic types of report structure are found in all these fields, and the same orderly procedure of research, thinking, and presenting the report is common to all of them. A thorough study of the comprehensive analytical report will provide a basis for the writing of reports in any of these fields that will be acceptable to any executive. Although the nature of the commission may automatically determine specific limits for each report, it will merely mean that the analytical report procedure will not be used in its entirety, but such portions utilized as will fit the limitations of the subject.

CLASSIFICATION ON NATURE OF FUNCTION

As mentioned at the beginning of this chapter, although most reports will fit under the three basic groups discussed, different companies have different methods of identifying their reports. Some make the classification on the character of the content.

Informational reports that come with regularity, whether it be daily, monthly, or yearly, are termed *periodic* reports. The same type of report covering a definite period of time but prepared upon request is called a *special* report. Strictly speaking this type would give information with general conclusions but no recommendations, although with many companies the special report means a special investigation of some particular problem and is accompanied by recommendations. In this case, the preparation and presentation falls under the more complete analytical type.

Periodic reports, as commonly used, present records of past events, and up to or including the present. They narrate important events, and interpret and explain results of operation over a period. Examples are the reports of officers, bank statements, governmental, etc., which frequently not only give the facts relative to a certain period but compare them with a preceding period.

Like other simple expository reports, the periodic follows the basic informational type in that they are fact-finding reports consisting largely of presentment of facts.

Special reports may be requested at any time and upon almost any subject. Usually the reputation and ability of the investigator will determine whether the problem shall be carried through to a complete solution. At other times, the nature of the commission will specify just how far the client or executive desires the investigator to go. If a group of specialists are asked to make a report on some problem, they will probably be expected to give the complete solution, with recommendations. If a subordinate in a company is commissioned to submit a report on some issue, the executive may specify that he wants facts with general conclusions, preferring to draw his own specific conclusions and make his own recommendations.

Special reports are usually analytical reports because they are requested for the purpose of solving some problem, and are frequently carried through to definite conclusions and recommendations. The special report aims at one thing and is noted for timeliness inasmuch as it is presented upon request. It may tell of something done, something underway, or something in the future. It may go to the general public, to a specialized group, or to one executive who requests it. It may be short or long, formal or informal. It may even be given by means of pictures.

The *examination* report, giving the past, present, and future of a problem, is another name used to designate the analytical report, although the latter seems to be a more expressive term for the whole procedure of collecting, formulating, and presenting data. This gives both findings of fact and analyses.

Another term sometimes used is the *recommendation* report. This is used largely in operation and construction reports, and to a large extent falls under analytical inasmuch as it not only gives the findings of fact and their analysis but offers recommendations for future action. It sometimes differs from the pure analytical report inasmuch as it does not handle the past in a comprehensive manner, sometimes taking an operation from some given point, and other times depending on general opinions and past experience for the earlier or past data.

Progress report is another report which may be limited to time, place, and handling of data similar to the informational

report, or it may go into such detail in both past, present, and future that it becomes analytical in its completeness. It may be periodic in its appearance, or it may be requested as a special report. So-called progress reports may be routine in nature, such as a daily or weekly report on the amount of concrete poured. Progress reports are used particularly in construction and operation work, although the secretary of the chamber of commerce may make a progress report during a drive for funds, or at the end of a year to show what his office has accomplished and to establish comparisons.

Improvement reports, partially analytical but sometimes omitting the statement of conditions and analysis of findings in detail, present recommendations or proposals for improving a situation or solving a problem. The proposal element is essential to this type.

The proposal element may be (1) along the line of general suggestions based more on experience than on a detailed survey, (2) on a specific, detailed, and complete solution of a problem developed from a specific investigation, (3) or by means of instructions which are more detailed, minute and adapted than the second.

Examples of 1—General accounting and purchasing methods. Survey of general offices at Tulsa.

Examples of 2—Customers' complaint procedure for the CIPS. Customers' service record system for Hartford Light Co.

Examples of 3—Instructions for installation of revised book-keeping system. Instructions for installing addressograph.

Improvement reports frequently demand written support in the presentation.

CLASSIFICATION ON BASIS OF FORM

Although this book is devoted chiefly to a discussion of the comprehensive analytical report because that type embodies practically all phases of report work, both thinking and writing, some problems do not require such a complete investigation and presentation.

Memorandum Report

The memorandum placed on the desk of the executive showing the supply of paper in the stock room is a type of report.

Since there is little investigation needed, the result is presented in correspondingly simple form.

Many companies have regular memorandum forms for inter-organization reports similar to this:

To	Date
From	Department
Subject	
Remarks	

A slightly more detailed memorandum style which furnishes opportunity for more discussion, and is better arranged for routing to several readers and for filing is this:

Subject	
Object	
Remarks	
Conclusions	
Recommendations	
Requested by	Date
Prepared by	Date
Approved by	Date
Noted by	
.....	
.....	
Routed to	Copies to
.....
.....

Letter Report

Both within an organization and in general business, many reports are submitted in the form of a letter. The content of such a letter report is the result of a minor special investigation, of the writer's own knowledge and experience, or, as is commonly the case, a combination of both. The scope of such a report is usually limited except as it may result from the breadth of the writer's experience.

The tone of a letter report is more often informal than formal, although the relation between the writer and reader will be the determining factor. Following the style of a complete report in abbreviated form, the letter may, in a single sentence, state the object of the report, authorization for it, scope covered, and method used.

Conclusions, with just enough supporting data to make them clear and convincing, constitute the body of the letter and recom-

mendations if requested or implied through the relations of the writer and reader may be included, usually in the form of the writer's opinions.

Letter Report

Dear Sir,

I have investigated in a somewhat general way, as you requested in your letter of February 4, the advisability and possibility of disposing of your farm in this county.

Frankly, land is selling slowly here, and although there have been a few indications of revived activity recently, the outlook is not yet promising. Increased taxes due to gravel roads and the general depression in prices for farm products have kept people here from saving much money, and has taken away a desire for more land.

Because of the three straight overflows in your district with the attendant breaks in the levee, the levee tax, as you know, has averaged about \$10 per acre. Owners of bottom land adjoining yours have been burdened with this tax and are in no position to make further purchases, and it will take several years to make the upland farmers forget the recent river disasters to the extent of investing in this land.

Inadequate shipping facilities cause this to be a rather poor market, and because of stringent times local feeders are buying only enough grain to last till spring. The effect of this is noticeable at the banks.

The farm itself should be one of the first to sell. Its location and convenience as well as the condition of the buildings are extremely favorable for an early sale when land begins to sell. In my opinion, this time will not arrive for another two years.

As nearly as I can estimate current prices, land similar to yours would not be worth more than \$60 per acre at the present time. Judging from old mortgages, valuations, and what I know the farm will produce, \$90 per acre should be the minimum. It seems to me that to sell now would be too great a sacrifice.

I have investigated the papers as you requested. The deed and abstract were in correct form with the exception of the fact that one old mortgage did not show as having been released. I have attended to that and am returning the papers as satisfactory.

Sincerely yours,

Short Report

Although not a distinct type in anything but length, the short, informal or semi-formal report is common in every business. The writer necessarily follows to a certain extent the reasoning and methods of the informational or analytical report but because of less data varies the presentation and arrangement to fit conditions.

Preliminary pages necessary to make clear the long report, such as the title page, letter of transmittal, and table of contents, are dispensed with or condensed into one or two paragraphs in the first page.

To attract attention, arouse interest quickly, and make the following data more intelligible, a summary of conclusions and recommendations frequently occupy first place in the arrangement of material, especially if the writer's ability is unquestioned.

The following report prepared by a comparatively unknown departmental worker is illustrative of a short report with the conclusions and recommendations placed at the end.

Accuracy of Electric Meters

I. The object of this report is to show clearly the accuracy of electric meters as measuring devices and to approximately determine the character and amount of revenue losses due to fraudulent practices of consumers.

INTRODUCTION:

A. Object:

B. This report was requested by Mr. Smith, Superintendent of the B— division, with the idea that measures would be taken to reduce such losses if they were a sizable item.

Authorization and purpose.

II. The data used concerning the accuracy of electric meters were compiled from the records of tests made during 1925 and 1926 in the B— division. Supplementing this data of service tests, other material was gathered from shop tests, which were conducted to determine the effect on accuracy of overloading electric meters. In gathering data on revenue losses, other meter departments were consulted in addition to the record of known and suspected cases of fraud at B—. Also, confidential statements of other public utility companies were used as a basis of comparison.

METHOD AND SCOPE:

III. That electric meters are one of the most accurate measuring devices is conclusively shown by the results of periodic service tests conducted during 1925 and 1926. During this length of time 1245 meters were tested as periodics. Of this number, refunds of revenue were made in 6 cases. In all of these instances the meters were running slightly over 104 per cent accurate. Of the rest of the total tests, 674 were within 1 per cent of being 100 per cent accurate, 501 were within 2 per cent of being exactly accurate, 26 were between 2 and 4 per cent fast, 30 were between 2 and 4 per cent slow and 8 were above 4 per cent slow. The total grand average per cent of accuracy was 99.935 per cent for the entire 1245 tests.

ACCURACY OF METERS:

A. Results of tests:

B.
Accuracy
and length
of life of
meters:

In all of the cases where the per cent of accuracy was over 104 per cent, the inaccuracy was found to be due to weak magnets. Also all of these meters were between ten and fifteen years old. Therefore it would seem that as the meters age they should be more carefully tested for strength of magnets. The cases where the meters tested slow were found to be influenced by rusting of bearings, or else by the gumming up of the old style oil. The use of the new oil will prevent gumming, and liberal application of oil to bearings should prevent rusting.

C.
Overloading:

The subject of overloading effect on accuracy of meters and the size of meters that should be installed in residences has long been a question for discussion among metermen. In order to shed a little light on this point, a test of both 5 and 10 ampere meters was made under controlled conditions of overloading. On the 5-ampere meter which was a new meter in 100 per cent adjustment, a load of 8 amperes was placed. This load would be equal to that created by the use of an electric iron and 4 or 5 lamps of about 75 watt capacity.

After having run the meter continuously under the 8-ampere load for five hours, it was again tested. Both the heavy and light load were found to be out of adjustment. The heavy load being .6 per cent fast and the light load being 1 per cent slow. The 10-ampere meter was then tested and placed under the same load. After five hours' continuous registering it was tested and found to be still 100 per cent accurate. Also it was determined that a load down to $\frac{1}{4}$ of an ampere would register on the 10-ampere meter as readily as it would on the 5-ampere meter.

IV.
LOSSES DUE
TO FRAUD:

A.
Amount:

That every public utility company dealing in electric energy has losses of revenue due to fraud practiced by their consumers is an admitted fact. At the B— division in the past two years we have detected 27 cases. The amount of revenue that was lost through these 27 cases was in excess of \$200 per month, according to a conservative estimate. Inquiries of our neighboring divisions, D— and C—, yielded estimates of losses due to detected cases in the past two years in excess of \$400 and \$250 per month respectively. The field men here at B—, which includes testers, meter readers and installation workers, estimate that there are over 200 cases of fraud, which they have not been able to detect.

B.
Methods
Used:

The most common and prevailing method of fraud is that of shorting the meter out of the circuit by means of a "jumper." The seals are sometimes broken and the reading of the meter changed, but this is usually found the first time that the meter is read. One of the most difficult methods to find is that of wiring the house so that a switch, located in an obscure place can take the meter out of the circuit at will. Sometimes, but not very often, the meter readers make an error in reading. Such errors are easily found and are generally corrected by the following month.

V.
CONCLUSIONS:

As a result of the investigation it seems that electric meters are about as accurate as possible, and that there is no loss to either the company or the consumer because of inaccurate registering of the meters.

As to the effect of overloading on the accuracy of electric meters, it is clearly shown that overloading does affect the accuracy of meters to some extent.

Losses due to fraud amount to a sizable item but in comparison to the known losses of other divisions and other companies, the estimate of losses here is not too large.

VI.
RECOMMENDATIONS:

Electric meters are accurate when not overloaded; therefore it is recommended that in all future installations 10-ampere meters be used except in the case of very small houses.

In the case of the losses by fraud, it is recommended that the line wires be enclosed in conduit up to the fuse box and that the fuse box be of the type that can be sealed. This would entail an expense to the consumer that he would not likely look upon favorably. Therefore, as it would be impossible to force the consumer to make such expenditures, it is recommended that the company make the installation at its own expense. It is believed such a course would cut the losses by fraud to a negligible item and would thereby pay for itself within a short time.

(Signed) W. S. WILSON,
Engineering Department.

OTHER CLASSIFICATIONS

Reports are sometimes classified on the basis of arrangement, as form or composition. In such a case, a form report is obviously of a routine nature as the salesman might send in at the end of each week, and is primarily of an informational nature. The composition report is the result of a more comprehensive investigation, although it might be either informational or analytical.

On the basis of the relation between the author and the reader, the classification is sometimes found of *administrative*, *professional*, and *independent*. An administrative report is made from an official capacity within a business, either as a routine matter such as the annual report of the president, or to fulfill a special request. The professional report is submitted by a specialist. It is usually prepared upon request and is expected to furnish definite conclusions and oftentimes recommendations. An independent report is prepared and submitted or published without request. Although presented from different angles, the mental processes and methods of work in collecting and presenting data are the same as in informational and analytical reports. The nature of the commission and the purpose of each cause the difference.

Thus in trying to give a name to some more developed feature of each report, companies find themselves with a family of hybrid reports, because they many times want recommendations on a research or periodic report. "An Appraisal of Employee Lunch Rooms" might from its title be classed as a condition report, but it also employs the results of research in several companies, and it makes definite recommendations. To solve the problem of name they add one more and call it *combination or composite*.

Special acknowledgment is made to the Business Research Corporation of Chicago for practical and useful assistance in the preparation of this chapter on Types of Reports.

CHAPTER V

ANALYTICAL REPORT

I. Definition of Analytical Report—II. Extent of Use and Variety—III. Subject Matter—IV. Characteristics: A. Salesmanship; B. Scientific Attitude—V. Processes in Preparing the Report: A. Preliminary Analysis; B. Working Plan; C. Collecting Data; D. Formulating Data; E. Interpreting Data; F. Presenting Data.

Beginning at this point, the next ten chapters will be a detailed discussion of an analytical report from the origin of the commission and the preliminary analysis through the actual writing or presentation of results. The analytical report has been selected so as to permit the exposition of more steps than the other more limited types would allow.

The business man in preparing a report can follow through this complete procedure and then take from it those parts that fit his particular problem.

A comprehensive discussion of all the divisions and alleged divisions of reports for which there are names would not only be endless and profitless, but would entail constant repetition which is needless, and which the business man will prefer to avoid. If a man learns one comprehensive type of report, one type of logical reasoning procedure, and presentation, he can adapt almost any report to it.

DEFINITION OF ANALYTICAL REPORT

An analytical report, as briefly discussed in Chapter IV, contains both findings of fact and analysis of those facts, both past and present, and the complete interpretation serving as a basis for the solution of the immediate problem and for future estimate and forecasts. This is in contrast to the informational report which tends to give emphasis to one or two divisions, usually past and present, but with no attempt at directing future action

or solving the problem. Every analytical report is dependent on an informational for basic facts, interpretation of which is necessary for the ultimate solving of the problem.

The complete, purely analytical report gives detailed suggestions for a solution; in fact, the proposal element is necessary for absolute completeness. It indicates the true significance of facts, outlines the reasoning by which a decision has been reached, and points to a remedy or further procedure.

A complete, analytical report is for the purpose of increasing or confirming knowledge of a more or less specific situation and providing means for improving that situation. The analytical report works toward a definite objective which may be to discover facts and uses of new truths or to interpret old ones.

The analytical report demands directed thinking. Undirected thinking is merely day dreaming and will solve no research problem.

EXTENT OF USE AND VARIETY

The analytical report is used in complete or curtailed form at some time in practically every line of work. This is particularly true of business in which man is trying to find causal sequences without resorting to the slow and expensive trial-and-error method.

The president of a corporation holds his position because of his ability to reach proper conclusions quickly and make correct decisions. He is responsible to stockholders, employees, public—every one. He must know every position. The answer is *reports*. And for the most complete, searching investigation requiring history, precedent, comparative present facts, conclusions and recommendations, the executive resorts to the analytical report.

Naturally he has many needs for lesser reports, which are none the less adaptations of the analytical. A short report on the arrangement of the shipping room to aid efficiency may not require the months of painstaking work that is frequently devoted to a comprehensive analytical report, but it is just as necessary within its field, and the steps in its preparation are but miniature steps, limited as to scope and purpose, of the bigger investigation.

The wide range of personnel of report readers indicates the extent of use and variety. A banker or investor who is interested in a report from an investment standpoint, an executive reading a survey of his own organization, a superior officer going over the report of a subordinate, a citizen interested in the report of a city department—these are only a few of that vast army of report readers who are responsible for the great variety in reports.

Condition of a business, department, or process at a given time, with comments, explanations, and recommendations fall within the range of analytical report. Inventories and appraisals, usually of the purely informational type, become analytical when they make recommendations based on inferences or conclusions drawn from the facts presented.

The analytical report may be a yearly affair, with suggestions for betterment of procedure next year, or it may be a special report that is timely and shoots like a rifle instead of a shotgun, aiming at only one thing. It may go from general to particular—for example, a general survey of what type of advertising literature architects want to receive to the specific conclusion that they prefer catalogues of certain sizes because they are more easily filed.

The special analytical report may tell of something done, under way, or contemplated for the future. It may go to the general public, and it may be long or short, even being entirely pictorial, such as those taken before and after some improvement.

Among the types of reports briefly discussed in Chapter IV, condition reports, when they recommend future action, are forms of the analytical report. Improvement reports, offering a solution to a problem such as the introduction of manuals to coordinate correspondence, are analytical. Others, according to their nature and purpose, may be analytical, such as: composite, short, long, special, recommendation, efficiency, examination, and period reports.

There are practically no limits to the range of analytical reports, since they are applicable and are used in industry, social welfare, or educational studies. In size, the analytical report ranges from the memorandum or letter type with its limited subject matter, to the stupendous volumes on "The Knickerbocker Theatre Disaster," "A Survey of the U. S. Farm Market," or a

legal report on "The Incorporation Laws of Each State in the Union."

The analytical report, covering all possible points in an investigation from the history of the problem down through the proposed solution based on the conclusions drawn, is found in all types of business and industry. Some of the more prominent fields are financial, engineering, organization, and marketing. After the discussion of the analytical report by units, it will be adapted to these fields, showing particularly the points of difference or those peculiar to each specialized field.

SUBJECT MATTER

What to include in the analytical report is determined by the knowledge of the reader and of the investigator. Naturally, after a preliminary survey of the field and a formulation of the objective the possible scope of the report will largely have been determined. This may then be modified after a consideration of the reader and a determination of the amount of knowledge that he possesses on the subject. Thus the subject matter included will be well within the necessary scope.

On the other hand, the knowledge of the investigator and his ability or lack of ability to uncover sources of material may limit the subject matter in a much less desirable manner.

Other limitations placed on the subject matter may be those such as the time element, financial, physical limitations of a plant, etc. For example, in a report to determine for a company what new product it could manufacture in order to take up certain slack in its production or distribution routine, the investigator might find his subject matter limited by the amount of time given him for the investigation, by the plant's physical inability to manufacture certain types of things, by the lack of capital to introduce something else, or by a sales organization that would not be adapted to the distribution of certain new products. In such cases, certain subject matter would automatically be omitted.

Possible subject matter of the analytical report is as varied as its usage is wide. The advisability of refinancing a company or of building a bridge at a certain point would demand a report, the result of the county fair committee's investigation of the

proposed celebration, or the use of an excessive amount of coal are only suggestive of the type of subject matter in the analytical report. Production, distribution, sales, management—all furnish material for reports, many of which are analytical.

CHARACTERISTICS

The general characteristics of the analytical report are the same as those discussed in Chapter III, namely, the rhetorical qualities of unity, coherence, and emphasis, judicial qualities, tone, and salesmanship.

Attention might be called to the judicial qualities of accuracy, precision, consistency, and thoroughness, since the analytical report furnishes the broadest field for their application.

Careful organization must be made to enable the reader to follow a clear-cut line of reasoning. The tone of the report will not permit sarcasm, exaggeration, or strong language. When occasional criticism is necessary, it should be handled as impersonally as possible, which will tend to tone it down to the inoffensive. Readability secured through careful selection and arrangement of material, as well as by mechanical aids, is an essential if the report is to achieve practical results.

Salesmanship

Another characteristic which has recently come into prominence in modern business reports is that of salesmanship.

Technically the analytical report, like the straight research report of a scientific nature, is coldly impersonal, its writer collecting data, analyzing and weighing it wholly in the abstract, and then presenting it to the reader in the same manner. In reality this is true of many reports which are presented to men who know the subject and prefer to make their own final decisions.

On the other hand, there is a type of analytical report which usually falls under the "applied research" type, in which the data are collected and analyzed just as impersonally as in the strictly research, but in which the presentation is determined to some extent by the desire of the investigator to get his report accepted. He has made a thorough and impartial study of the problem, believes his solution is the proper one for the reader,

and presents his facts in such a way as best to appeal to the reader to secure a fair and just consideration.

The industrial engineer who studies the needs of a certain town for a sewage disposal plant and finds crying need for such a plant, emphasizes certain features of his report to catch and hold the attention of the layman reader on the town board. This is not done for the purpose of beclouding issues in any sense of the word. It merely means that he displays the sense for selection of material characteristic of the good writer and makes his conclusions, which have been derived through impartial study, stand out in readable and convincing style.

To term this putting salesmanship in his report would be decried by the strictly scientific research worker, who abhors the very word "salesmanship." But call it what you will, this careful selection and presentation of material to attain the objective of the report is found in studying a multitude of reports and must be recognized for its true worth.

Industrial engineers, considering the nature of their subject matter with its variable elements, make their surveys just as accurately, and their estimates just as exactly, within their power, as the chemist makes his tests. But unlike the chemist in presenting his report to the reader, the former adapts the presentation of his findings so that it may be more quickly absorbed and action accelerated.

The advertising agency in making a survey for a client will arrive at conclusions in as scientific a manner as possible. But in presenting that material it may emphasize one feature or another, depending on the wishes of the client, purpose, cost, time limitation, and other characteristics of the nature of the commission. Such a report may have some criticism, and even arguments, as well as recommendations. It may even include some persuasion to get the client to act for his own good.

And so, although this type of report rather controverts the strictly impersonal, cut-and-dried idea commonly attached to reports, this element of salesmanship or good judgment in selecting material to be presented, is prevalent in many familiar types of reports in the business world today. While this is not listed as a characteristic of all analytical reports, it should be considered as a characteristic of one type of analytical report.

The client who accepts this kind of report has confidence in

the ability of the investigator and has already made up his mind to a large extent to follow the suggestions offered. He appreciates having the major ideas drawn to his special attention so that he may consider them within a minimum amount of time. This salesmanship in presentation has developed through the demands of the clients rather than through any particular wish on the part of the investigator.

Sometimes the sales or persuasion involved in the presentation may best be inferred or left for oral presentation.

Another characteristic of this type of analytical report is that it usually concentrates on the conclusions and recommendations; oftentimes to the extent of putting them ahead of all discussion. Detailed material, which hinders reading, such as involved tables, etc., are relegated to the appendix.

After making his investigation, the writer draws his conclusions, then stands back and views the whole report with the eye of a journalist, looking at the picture as a whole and deciding what will strike the reader best and be of most interest to him, before writing. The material selected is given no undue "coloring," but may be given greater emphasis because of position and space allotted.

Scientific Attitude

To make a report that will be worth while and of any value, the worker must approach his subject and collect his data with the impartiality of the scientific worker. The conclusions and recommendations, even though some may be presented in more elaborate fashion than others as in the sales type, must obviously be founded on strictly impartial facts.

The distinction between opinion, fact, and assumption, as previously stated, must be clear-cut and plainly set forth. Opinion advanced in the report as fact will cause the reader to question the authenticity of the entire work. Accuracy once questioned is almost fatal to a report.

PROCESSES IN PREPARING THE REPORT

Characteristic processes involved in the production of analytical reports are:

1. Determining the plan or preliminary analysis.
2. Developing a working plan.

3. Collecting data.
4. Formulating data.
5. Interpreting data.
6. Presenting data.

Briefly explained, before the detailed discussion, these processes are:

Preliminary Analysis

After the problem has been authorized or assigned, the investigator considers the subject and surveys the field in the light of the knowledge and experience that he has available. Having determined the most logical first sources from which to get material, he prepares his bibliography as completely as possible at this stage of the work. Many times this process will uncover the fact that the subject has already been investigated in whole or in part, and thus save much or all of the work.

Having made this study of source material, the investigator sees what trend the work must take, and is able at least tentatively to define the problem and determine to some degree the objectives toward which he must work in order to accomplish his purpose. Naturally this will be subject to change and modification as source material is later read and analyzed.

Working Plan

Because all work to be thorough and orderly must follow some scheme of organization, a tentative outline is the first step of the working plan, made, of course, after the bibliography is carefully studied to decide what information is going to be necessary to solve the key problem, and what is to be the scope of the investigation. Sometimes a quick search through source material such as magazines, library, books, etc., will be desirable before making the working plan. The intensive portion of this work, however, will be reserved for a more logical reading after a plan has been decided.

Other purposes of the working plan are to determine the methods of securing data, the procedure in gathering material, and to determine the best way for recording and analyzing. A brief survey of the availability of data will often save much time later, sometimes changing the scope of the report and sometimes enabling the worker to start the machinery necessary for get-

ting difficult material while at the same time working on some division more easily available.

Collecting Data

The process of collecting data includes reading, note taking, questionnaires, interviews, and any other method peculiar to the problem.

In an investigation to determine the type of magazine subscribers in a certain district, the investigator, after studying the errors of past tests, and determining the scope of his work relative to occupation, income, and kind of market reached, for the purpose of securing data, broke up his work into units of occupational classifications, house-to-house survey, news-stand investigation, and questionnaires.

Formulating Data

Formulation of data means where, when, and how to assemble and record data. A good filing and entering system is a necessity for an investigation of any size. It makes writing easier and during the work constantly tells the worker in what departments he lacks sufficient material.

Interpreting Data

Analyzing and interpreting the data collected is a process of dividing facts into usable units and determining the relation and value of each to the key problem. This may mean considerable reduction of material and also much shifting in the tentative outline followed up to this point. In view of the interpretations made, conclusions and recommendations are prepared.

Presenting Data

After the data has been interpreted, and the outline is revised in final form, the report is written so as to present the result in interesting, clear, convincing, and, to a certain extent, persuasive style.

Each step in the preparation of the report as here mentioned is discussed in detail in the following chapters.

CHAPTER VI

PRELIMINARY ANALYSIS

I. Definition—II. Procedure—III. Preliminary Survey—IV. Analysis of the Problem to Find the Specific Objective: A. Methods of Analyzing a Problem: 1. Questioning; 2. Factoring—V. Working Plan—VI. Summary.

Back of most business research there is a business situation which is perplexing. To take an imaginary example, a bank finds that its advertised service has led the public to expect it to give credit information, tax information, a means of buying, of selling, of storing securities, and of cashing coupons. The profits of the bank do not keep pace with the growth of its services. Some thinking executive decides to make an investigation to determine *what* services are profitable in order to decide *what* ones to retain and *what* ones to eliminate. A problem arises out of this specific situation.

To cite a real incident of the origin of an investigation, we may take the situation outlined in a letter from the director of a department of *Business Analysis and Advertising Practice of an Advertising Agency* to an employee who had the responsibility of conducting an investigation to find out how the sale of a food product in a certain city could be increased. With such names and facts as are necessary to disguise identity, it reads as follows:

“DEAR MR. SMITH:

Henry Melin was here today, and he told us that in spite of all the advertising he has done in Columbus the sales of Margine¹ are unsatisfactory. We are very desirous of giving Mr. Melin a comprehensive survey of Columbus and to ascertain, if possible, the reasons why the sales are not consistent with other markets.”

¹ Margine, a coined word used to suggest a butter substitute.

Mr. Smith is thus informally instructed to undertake an investigation. He is not told merely to "look into this." He is instructed to make a "comprehensive survey and to ascertain, if possible, why the sales were not consistent with other markets." This advice brings his problem within the classification of research described in the following passage:

"Research should be a well formulated effort to apprehend and to solve a difficulty, to solve a problem, or to clear up an issue, suggested by a general or a specific situation with which the management may be confronted. Research implies method and procedure. Procedure is the doing—the objective manifested of method. Method is a purposeful, cautious, and logical process of thinking."²

How will Mr. Smith use business research method and procedure to find the reason why sales in that one market were not consistent with those in another?

His point of attack for solving the problem is to make what is known in the language of business research as a *preliminary analysis*. The method of procedure which he uses to solve his individual problem will illustrate the general method of procedure of making a preliminary analysis.

He undertakes a very important and difficult step of research. It is important because the success of other steps depends upon his finding through this step, what facts to collect in order to solve the problem. He may be accurate in observing and describing facts and commit no fallacy in drawing inferences, and yet arrive at wrong conclusions merely because, in his first step, he did not pick the facts on which the solution of his problem depended.

DEFINITION

The term *preliminary analysis* calls for definition. It has been defined as "the early phase of research beginning with the point of attack and going to the point where it becomes more or less evident to the one doing the research and the management that the problem is solvable."³ Its purpose is to collect all the data pertaining to it that are known and by analyses to understand them thoroughly.

² Proceedings of the Institute of Management, No. 8, p. 3.

³ *Ibid.*, No. 8, p. 7.

PROCEDURE

The procedure of preliminary analysis may be divided into three pretty distinct steps:

1. A preliminary survey of the situation out of which the perplexity comes.
2. An analysis of the perplexity to determine which of its elements is the real problem.
3. The devising of a working plan.

PRELIMINARY SURVEY

In the case cited, Mr. Smith is not forced to take the entire responsibility of making a preliminary survey of the situation. The director's letter gives the following information to him which supplies many points that he would ordinarily get from making his own study. The information reads as follows:

"As you know, they (the Melin Company) have used our medium as well as the newspapers consistently in Columbus and are maintaining a three-sheet campaign there at the present time. Melin's Margine is conceded to be of the highest quality, and his goods enjoy the largest sale of packaged butter substitutes in the country.

"Notwithstanding that Melin products retail at a higher price than most packaged goods in their line, they have succeeded in competing with lower priced packaged goods in every other city in which they have secured proper distribution, backed by their advertising and sales methods."

Later, in the letter, he adds another item of information which is just such information as the investigator would secure by a preliminary survey:

"Mr. Hall informs me that he has had a lengthy conference with Mr. Bridwell, Mr. McCrelis, and Mr. Kendrick regarding this account, and I feel that our organization is willing and anxious to render every assistance to this client wherever it is possible."

The reason for the preliminary survey of the situation in his investigation is that he wishes to know the exact situation. In this particular problem, Mr. Smith learns that Melin's Margine is conceded to be of the highest quality, and that it enjoys the largest sale of packaged butter substitute in the country. He

learns that, although higher in price, Margine succeeded in competing with lower priced packaged goods in other cities. If the causes of decrease in sales are bad selling methods, it would be poor policy to improve the quality of the product or reduce its price. Eliminating products and price as possible causes of sales falling off, the investigator comes nearer to deciding what-is-yet-to-be-found out. The reason for the preliminary survey of the subject in any investigation is apparent.

The investigator must consider the weight and number of influences, some of them within the organization and some without the organization, which will determine what must be found out, what kind of investigation to make, and what kind of report to write. Influences include such considerations as:

1. Use to be made of the report.
2. The importance of the subject.
3. The character, personality, temperament, official position, desires, and instructions of the reader.

The investigator will consult with his client or the management of the firm for which he is working. If there is a research department in the firm which has assumed responsibility for records in the form of budgeting, accounting, or other data, he has a ready means of facilitating his preliminary survey. He will examine his own general knowledge of the subject of his research or inquire of his co-workers on the special problems under investigation or merely employed in the same organization. He will put down on paper titles, topics, and subjects that suggest themselves in his survey to guide himself in his rapid bibliographical search for material bearing on his subject.

When the investigation requires considerable work in the library, the preliminary analysis should include the preparation of a bibliography for subsequent use. This will not only give an idea concerning the amount of material available, but may uncover work that has already been done that will save much time, energy, and money for the investigator. The titles or subjects will also guide him to unpublished sources of information representing what others in analogous organizations have done and what conclusions they have reached concerning similar situations. For example, any manufacturer seeking to find out the desirability of marketing his product by house-to-house selling

will seek what has been the experience of the Fuller Brush Company or the Real Silk Hosiery Company, even though his product may be quite dissimilar.

The reader will compare the work in hand to other work which has been done along analogous lines. Market analysis including studies of competition, advertising, and salesmanship for other food products in the same territory will very likely reveal the secret situation out of which the problem arises and discover, rather definitely, difficulties in their setting.

If the preliminary survey has been thorough, the investigator has noted the difficulty in a practical situation. Too much emphasis cannot be given to knowing the practical situation out of which a problem springs. It is the only thing that makes the solutions and recommendations resulting from a special investigation fit the special case. All too many recommendations are divorced from practical situations.

ANALYSIS OF THE PROBLEM TO FIND THE SPECIFIC OBJECTIVE

The preliminary survey of the situation leads right into analysis of the perplexity in order to formulate the major problem or to determine its objective. This is the second step of the preliminary analysis.

This step has, as its purpose, the separating of the situation into its elements, of eliminating unlikely factors, and of determining the relation of these parts to various possible solutions, open to consideration. It also has the purpose of selecting the most timely for solution or the one most practically important for settlement.

The reason for breaking a problem into its parts or factors is because the human mind can usually grasp but one thing at a time. When a problem is so divided into its logical parts, or is broken down into minor problems or issues which are considered separately, the major problem, otherwise hidden in obscurity, stands out.

If the title of the research problem is submitted with the commission, a definition of terms that will serve as explanatory or as limitations will give the worker a more specific idea of the

nature of his problem before beginning his investigation. After the preliminary search for material has been made, enough information may be secured to permit a more accurate definition of terms or factors before the real investigation is begun. Definitions may be varied from time to time as new data are discovered, but keeping always at hand a definite statement of the purpose or object of the work many times serves as a stabilizer for the investigator when he finds himself enmeshed in a myriad of data both relevant and irrelevant.

Methods of Analyzing a Problem

Questioning—One method of analyzing or of breaking a problem into its logical divisions is *questioning*. The investigator, by asking himself questions about a specific situation, brings factors to light. Ordinarily, the investigator himself proposes the questions in order to find the factors that constitute the problem. Referring again to the reason why sales of Melin's products were unsatisfactory in Columbus, the director who authorized the investigation suggested questions in the form of the following statements:

- (1) It may be a peculiarity of the class of people of Columbus who prefer bulk goods.
- (2) It may be that the people prefer price rather than quality.
- (3) It may be a fault of the Melin sales policy in Columbus.
- (4) It may be due to ruinous price cutting of competitors.
- (5) It may be due to insufficient sales pressure and advertising.

As the investigator passes in review these possible reasons as to why sales have fallen off or makes a partial survey, he will easily see that some of them do not constitute the real seat of the trouble. One or two will appear worthy of further consideration. The investigator will at once direct his efforts to proving or disproving these probable explanations of trouble and test out in imagination how acting upon them in building plans to increase sales would work out. He may consult those whom he considers authorities on the subject to secure their opinion as to which assumption has the best ground for being named as the real difficulty.

“*Factoring.*”—A supplementary method of analysis is “factoring.”⁴

To return to the procedure of the preliminary analysis of the specific case in question, the director of the investigation, from the possibilities enumerated marshals two chief factors of the problem. He indicates them in this summation:

“*Price* may be an important factor; the *sale* of bulk goods, another factor; and the *consumption of products* in Columbus may be subnormal.”

This summation of factors suggests a study of two factors of any market analysis: (1) a study of the product, and (2) a study of buying habits of the consumer. In stating elsewhere in the letter that one objective is to ascertain whether Melin has the proper distribution and in addition to ascertain the status of his various competitors, the director of the investigation has marshalled the other two factors of a market investigation, (3) a study of *competition*, and (4) a study of *merchandising methods*, including a study of *advertising* and of *selling*.

This summation of factors presents the problem in a general outline only:

1. Study of the product.
2. Study of the buying habits of the consumer.
3. Study of the competition.
4. Study of the merchandising method.

The outline serves, however, as an indispensable guide to further investigation. These factors are intermediate terms between the definition of the problem and the object toward which it is working. The problem as formulated, *is to find where sales resistance is*. The objective toward which the investigator will work is *to tear down sales resistance*.

The factors discovered by the analysis serves as a rough outline for getting information on the elements of the problem. “It serves as a basis of operation, a working hypothesis that guides the research procedure.”⁵

These factors may be considered as to whether they are major

⁴ Factoring is a coined term taken from Neil H. Borden and Charles A. Glover, “Suggestions on Report Writing,” p. 12, Harvard University, 1925.

⁵ Proceedings of Institute of Management, No. 8, p. 10.

or minor elements in solving the problem. They can be arranged on paper according to their value in reaching a conclusion. They can be arranged on paper according to what should be looked into first in order to unfold successfully the secret cause of trouble that will allow one to proceed with the recommendations as to what is to be done. The breaking up into factors has made it possible to put down the framework of the problem on paper, which is likened to the engineer's blue print. The person doing the investigation should scrutinize each factor of the analyzed problem very carefully to obtain leads or suggestions which will serve as working hypotheses as to how he must proceed to get an answer, or to test the ideas suggested by each factor of his analysis. It is necessary to take stock of what data are required at this point, not only to show the specific relation of the separate data to the elements of the problem, but also for the completion of the investigation.

WORKING PLAN

The third step in the preliminary analysis is to devise a working plan to guide the next step in the procedure of the investigation, the gathering of the data. So important a division is it of preliminary analyses that a separate chapter is devoted to it. However, to make the point that the rough outline form guides the investigator in deciding what data he wants and in planning questions to secure them, the director's questions, growing out of the factors into which the Margine problem is analyzed, are given in this chapter prefaced by his directions for using them:

The investigation should cover a sufficient number of stores such as jobbers, cash and carry jobbers, independent retailers, and chain-store groups in order to ascertain whether Melin has the proper distribution and in addition to ascertain the status of his various competitors.

In cases of this kind, however, it usually works back to the consumer. So the vital thing would be, perhaps, to try to secure, in addition, a cross-section of the consumer's attitude, the "whys" of it all. Price may be an important factor, the sale of bulk goods another factor, and it may be that the consumption of Margine products in Columbus is sub-normal. We are enclosing some questions that occurred to us, but we do not want them answered in any other than

a narrative way. Boiled down the facts to be ascertained are suggested on the question sheet.

The questions are:

What brand of packaged butter substitute as above enjoys the largest sale in Columbus?

What brand enjoys the second best sale?

What brand enjoys the third best sale?

Has Melin's packaged goods a thorough distribution in the independent stores?

Has Melin's Margine a thorough distribution in the independent stores?

What is the percentage of distribution of Melin's packaged goods in the independent retail stores interviewed?

Do the various chain-store groups sell Melin's products in cans? If not, state what brands they do sell in addition to their own private brands.

What brands other than private brands of packaged butter substitutes enjoy the largest sale with the chain-store groups in Columbus?

Do chain stores sell bulk butter substitute in addition to packaged goods? If so, what is the percentage of bulk sales to packaged goods?

Do the better independent stores sell bulk butter substitute in addition to packaged goods, and what is the percentage of bulk sales so compared to packaged sales?

Mention the local manufacturers, if any, that enjoy a sale of packaged butter substitutes in Columbus, and whether they sell direct to the retailer or through the jobber. Do they advertise extensively in Columbus?

A study of these questions shows that they are focusing or getting information about the four main factors in our problem:

1. The product.
2. The competition.
3. The consumer.
4. The merchandising.

Such a one as, "What brand of packaged butter substitutes quoted above enjoys the largest sale in Columbus?" seeks information about competitors. The question, "Do chain stores sell bulk butter substitutes in addition to packaged goods? If so, what is the percentage of bulk sales to packaged goods?" seeks information about the product.

Some questions seek information on more than one point. To cite an example: "Do the better independent stores sell bulk butter substitutes in addition to packaged goods, and what is the percentage of bulk sales so compared to packaged sales?"

Whether a given question seeks information on one factor or on another is a matter of focus. The important thing is that they bring information on the product, the market, the merchandising plan, and the attitude of the consumer.

SUMMARY

To summarize briefly, the purpose of the preliminary analysis is to bring some order out of chaos, to determine the issues and how to solve them. To accomplish this, the procedure of the preliminary analysis is three-fold.

First, a preliminary survey of the situation is made to discover what is already known, which includes finding out what the client or management thinks, knows, and is, drawing on the investigator's own knowledge and experience, and upon the knowledge and experience of co-workers, preparing a bibliography of sources, and investigating analogous lines.

Second, an analysis is made of the results of the preliminary survey which by the processes of questioning, factoring, and the elimination of factors, permits selection of essential issues, and definition and formulation of the problem.

Third, the essential issues or factors are evaluated and outlined to form the working plan under which the intensive search for data will be conducted.

CHAPTER VII

WORKING PLAN

I. Factors Influencing the Working Plan: A. Objective of the Report; B. Purpose Which Working Plan is to Accomplish; C. Procedure of Making the Working Plan; D. Content of the Working Plan; E. Results Anticipated from the Working Plan—II. The Objective of the Report—III. Purpose Which Working Plan is to Accomplish: A. Indicate purpose, scope, method, and possible results; B. Record first impressions; C. Securing the Approval of Client or Executive Authorizing the Report—IV. Procedure of Making the Working Plan: A. What Information to Procure and How Much; B. Where to Secure Information; C. Working Plan in Relation to Time, Money, and Data Available; D. Determining the Methods of Securing Data; E. Deciding the Point of Attack and the Procedure for Gathering the Material; F. Planning for Formulation of Data; G. Making a Tentative Outline—V. Content of the Working Plan: A. A Digest of Impressions Received During the Preliminary Analysis; B. A Tentative Outline of the Final Report; C. A Copy of Questionnaires to be Used in the Investigation; D. A Plan of Procedure for the Work; E. The Preliminary Conclusions—VI. Results Anticipated from the Working Plan: A. Additional Information; B. Favorable or Unfavorable Expression of Opinion to the Proposed Plan; C. Authority to Proceed with the Carrying Out of the Plans.

After the objective is known, the next step in the procedure of making an investigation is to plan carefully how the objective can be reached. The entire program for making the investigation should be mapped out in advance so far as it is possible. Much time and expense will be saved if the planning of the investigation is carefully done before one begins his investigation.

In drawing up a working plan, the investigator, as some one writing on business investigation has said, confronts much the same problem as the lawyer when, after finding his culprit, accusing him of a crime, having him hauled into court, he faces the problem of obtaining proof of the accused's guilt. The lawyer draws up a program, and after his preliminary diagnosis,

gets down to a painstaking intensive study of how the available facts prove or disprove his case.

As the lawyer's program guides his intensive study of how to prove or disprove his case from the available data, a bird's-eye view of some of the considerations that shape the drawing up of the working plan is desirable at this point. It includes an enumeration of the factors that influence the investigator in drawing up his plan and its subdivisions. Each is discussed, as it is needed, in the unfolding of the procedure of making a working plan. Certain points, discussed under preliminary survey, recur here. For example, the investigator was seeking the objective when making the preliminary survey. He is using it as a guide in selecting what data he wants, where they will be found, etc., when he is presenting the working plan to the client or executive who is to pass upon it.

FACTORS INFLUENCING THE WORKING PLAN

There are five main factors that influence the investigator in making his working plan:

A. Objective of the Report

B. Purpose Which Working Plan is to Accomplish

1. To give an idea of the purpose, scope, method of the investigation and statement of possible results.
2. To make a record of first impressions.
3. To secure the approval of those authorizing the report before proceeding with the investigation.

C. Procedure of Making the Working Plan

1. To get a fairly concrete idea of what information he should procure and how much in order to draw sound conclusions.
2. To decide where he can secure information and data.
3. To decide how much time and money are available for making the study.
4. To decide method of getting information.
5. To decide where to begin and how to proceed.
6. To plan for the formulation of data.
7. To make a tentative outline of the final report.

D. Content of the Working Plan

1. A digest of impressions received during the preliminary analysis.
2. A tentative outline of the final report.

3. A copy of questionnaires to be used in the investigation.
4. A plan of procedure for the work.
5. The preliminary conclusions.

Results Anticipated from the Working Plan

1. Additional information.
2. Favorable or unfavorable expression of opinion to the proposed plan.
3. Authority to proceed with the carrying out of the plans.

THE OBJECTIVE OF THE REPORT

The objective of the report determines, as a usual thing, the type of investigation and hence its procedure. One objective commits the investigator to making observations and experiments in a laboratory; another to a bibliographical survey; and a third, to interviews either inside or outside of the organization, or to the use of the questionnaire. More often than not, the investigator has the responsibility of deciding the type of investigation. The client is likely merely to say that a process is uneconomical, a new product is required, or the organization is inefficient. The investigator, like the physician, proceeds through conferences with clients or his managers to analyze, to study, and to determine the nature of the examination required.

PURPOSE WHICH WORKING PLAN IS TO ACCOMPLISH

Indicate Purpose, Scope, Method, and Possible Results

Invariably a working plan makes clear to those who will pass upon it the purpose, scope, method, and possible results to be secured from the investigation. That this statement is true is better shown by example of how purpose, scope, method, and possible results are treated in a specific working plan. An example is chosen for a consumer investigation on John Doe Clothes.¹

¹The name of the firm and the product are changed to disguise identity.

John Doe Glove

Consumer Investigation

Purpose

The purpose of this investigation is to interview glove consumers (largely housewives) at their homes, as to their glove-buying habits in order to assemble all the information available from the source that will—

- (1) aid in planning the most effective possible type of copy for the campaign, or
- (2) have any bearing on possible improvements in the methods of merchandising.

Scope

Several cities will be covered, and in each, three distinct types of residential areas:

1. *High*—Comprising homes as far up the economic, or income, scale as possible without encountering servants at the door.
2. *Low*—As far down the economic scale as seems to present any market for John Doe Gloves and where intelligent interviews can be obtained. (This would exclude foreign and negro districts and the very poorest of Americans.)
3. *Medium*—Middle class families between the above two extremes.

For each of these groups, areas should be selected that are as homogeneous as possible and distinctly of the type represented.

In each city at least two areas of *each* of these types should be covered. These should be far enough apart to insure their *not* being in the same John Doe representative's territory. It is also desirable that these areas be in territories of salesmen different in type and degree of success. This can be checked at the John Doe Branch Manager's office.

At least 25 or 30 satisfactory interviews should be made in each area covered.

Method

The individual interviews will, in effect, consist of engaging the informant in a general conversation as to her glove buying habits with special reference to her experience with and attitude toward John Doe and covering all points outlined on the appropriate questionnaire.

Two questionnaires are provided: one for all those who have, at any time, purchased any John Doe gloves; the other, for non-purchasers. These are to be used both for convenience in recording and to serve as a check on the completeness of the interviews.

There are a few questions (marked *) on the customer questionnaire which are pertinent only to those who have bought John Doe several times and recently.

To some questions—those of fact—categorical answers (Yes or No—2,

3, or 4, etc.) are all that are required. To questions of opinion, attitude, or impressions, however, the definiteness, feeling, or color of the answer is fully of as much importance as the actual words used.

The statement of the purpose suggests what results are to be expected from the survey. In this section of the working plan just quoted, it is expected that the investigation will:

(1) Aid in planning the most effective type of copy for the new John Doe Advertising Campaign, or

(2) Have any bearing on the possible improvements in the methods of merchandising.

In a working plan of a second investigation on juvenile furniture the *results anticipated from the investigation* are suggested in the working plan as follows:

Questions to be answered by this survey are:

1. What is to be sold?
2. Where is it to be sold?
3. To whom is it to be sold?
4. How shall it be sold?

Record of First Impressions

As the preliminary survey serves to give the investigator, who makes it, a clear conception of what is known of the perplexing situation out of which a business investigation springs, the working plan serves to present to the client or executive, who passes upon it, the digest of these same impressions. The working plan usually gives this digest of impressions at the beginning. In the report upon juvenile furniture, just referred to, the digest reads:

On the question, "What is to be sold?"

(1) "These products will be classified as specialties, in as much as they will be sold under a distinguishing trade mark which will differentiate them from similar articles."

On the question, "To whom is it to be sold?"

"There are two general divisions of a market:

"1. Unlimited Market.

"The potential demand and the amount of saturation will assist in determining the limitation of the market. Generally speaking, unlimited markets exist where the products are of sufficient utility to warrant national distribution.

"2. Limited Markets.

"Geographical where freight rates render sales effort of small value. These products will compete with other products which are offered for use

to fulfill similar functions. Whether these devices are patented or patentable, other devices or products offered for similar purposes will reduce the demand.”

Securing the Approval of Client or Executive Authorizing the Report

No more important purpose is to be accomplished by the working plan than that of securing the approval of those authorizing the report before proceeding with the investigation. The plan may be submitted to an individual, a board of directors, one department, or several departments, but no matter to which one it is submitted, from these the investigator expects to get:

1. Additional information.
2. Favorable or unfavorable expression of opinion to the proposed plan.
3. Authority to proceed with the carrying out of the plan.

In accomplishing these objectives the investigator may use an explanation to act as an ambassador for his working plan that is analogous to the letter of transmittal preceding his finished report. Such is the following:

INVESTIGATION OF NEW-PRODUCT POSSIBILITIES FOR SPICER MANUFACTURING CORPORATION

“The purpose of this study is to determine, or to start upon the process of determining, what is the most suitable product for this company to manufacture. This is merely a preliminary investigation, representing only three days’ work. The plan is merely sketched. The interviews are not sufficiently numerous. No conclusions have been drawn from them. It is hoped, however, that this report will serve as a suitable point of departure, and that it will indicate the best method for continuing the research.

“It is recommended that the following steps should now be taken:

1. An accurate definition made of the product which would suit Spicer requirements.
2. A canvass be made by mail of suitable sources of products.
3. That this canvass be followed by more interviews.

PERCIVAL WHITE
August, 1926”

PROCEDURE OF MAKING THE WORKING PLAN

What Information to Procure and How Much

To guide themselves to what information must be secured to solve a specific problem, investigators often turn to analogous investigations. For example, any manufacturer requiring an investigation to help him decide whether or not to manufacture a new product may turn to the working plan of Mr. Percival White, outlined in his article, *How To Find a New Product to Manufacture*,² in order to find out how much data to consider and the steps in the procedure of considering them.

In a report to the company referred to in the above letter of transmittal the steps of such a working plan are tabulated as follows:

1. The investigator interviews selected members of the company's organization in order to find out what each one believes to be most nearly in keeping with Spicer requirements of the financial angle, marketing angle, and production angle; to see whether his method of approach is sound; and to obtain opinions as to what lines of manufacture would be suitable for the company to enter upon.

2. He analyzes replies and codifies the result, using a liberal amount of his own imagination and good sense. If possible, he obtains approval for the requirements he finally draws up.

3. If the company thinks the line of manufacture would be suitable, the investigator proposes the same question to selected individuals outside the organization such as company's customers, experts in all similar lines of business, various specialists such as patent attorneys, engineers, merchandising experts, and members of the trade through which the new product would have to be sold.

4. The information is analyzed, compared, and interpreted, as in the case of "inside" information.

5. The various products mentioned are matched against the requirements which have been laid out.

6. After choice has been made, it is tested out on a small scale by a few experimental models, being tried out on a selected market.

In the selection of the working plan quoted, Mr. White indicates that he wants the following:

1. A complete panorama of all the products which might possibly be manufactured by Spicer.

2. Opinions of those in the Spicer organization concerning the Spicer requirements of financial, marketing, and production angle to find out what the company thinks it can manufacture.

3. Opinions of people outside of the organization concerning what the public needs that the Spicer Company should manufacture.

² WHITE, PERCIVAL, *Printers' Ink Monthly*, March, 1927, pp. 69-70.

No indication is given in this working plan concerning the number of interviews made within the organization. Outside of the organization, he made nine interviews. In judging products, he passed thirty in review.

No arbitrary statement can be made as to how much data qualifies the data as representative. In a consumer investigation to determine the buying habits of women in regard to gloves, it was recommended that at least twenty-five to thirty people in two sections for each of the three groups of people in a town classified by income be visited. This would mean that fifty or sixty of each of the three income classes were visited. The research organization which conducted the analysis of the average American home for the *Literary Digest* made 11,232 interviews. The Domestic Distribution Department of the United States Chamber of Commerce made interviews in 12,096 working men's families in trying to estimate the average amount of income spent for rent, clothing, food, etc.

The investigator needs to be cautioned more against gathering too little data rather than too much. The time and expense elements usually prevent him from gathering too much. On the other hand, the principal of a school who based his decision on whether or not superintendents preferred typewritten or long-hand application letters on the basis of sending inquiries to two superintendents in each of the states of the union had all too few specific examples from which to draw conclusions.

Where to Secure Information

Deciding where the information may be obtained grows directly out of the determination of what data to obtain and how much. Investigations differ mainly in method of gathering facts. One objective makes the type of investigation bibliographical—that of finding out and making use of what has been written on a subject. Another objective makes laboratory tests and experiments the right method of collecting facts. Still another necessitates interviews within an organization; another, interviews and questionnaires outside of the organization.

The working plan of the investigation just cited, for arriving at the solution of a new product in the most scientific, economical, and thorough manner, calls for library work in order to find accepted classifications of problems; for interviews inside

the organization to see what products are appropriate to the organization; and for interviews or for questionnaires to be sent by mail outside of the organization, to obtain the opinion of experts concerning the demand for the product.

For a specific example of the experimental type of survey, we can turn to a technical research. For bibliographical, to a computation of potential market for a product. For investigation inside the organization requiring interviews with fellow-workers, to a production problem. And outside of the organization requiring interviews of authorities on the use of the mail questionnaire, to a determination of methods of merchandising.

Where information shall be gathered becomes apparent usually when the real objective is determined.

Working Plan in Relation to Time, Money, and Data Available

In deciding the scope of an investigation, which is, in truth, deciding such questions as how *intensive* shall the character of the investigation be; how comprehensive shall it be; shall it be only a partial study; shall it be a final study—the investigator is always limited by considerations of time, of money, of data available, and the nature of the subject, the importance of the subject, the character and personality of the client, the official position of the client, and the desires and instructions of the client.

Time, money, and data available have as much bearing upon mapping out the working plan of the investigation as upon the length of the written report. The getting of representative data is more important than the getting of a quantity of data. Since a business man has only limited time for the consideration of the report, and since he must be given credit for having intelligence and a certain knowledge of the activities under his charge, it is a waste for the investigator to collect facts which he already knows.

The amount which a firm can afford to pay for investigation and research in general or for any specific piece of work must in each case be decided by the client, or the person who authorizes the report.

Always, in determining scope, it is necessary to plan an extensive enough study to give an unassailable preponderance of facts or opinions. A study of similar investigations helps in this regard.

Determining the Methods of Securing Data

The methods of securing data and opinions are

1. Reading to secure the experience of others preserved in the secondary source, mainly printed.
2. Records to secure secondary information, usually unpublished.
3. Observation to secure primary or first-hand data.
4. Questionnaire to secure unrecorded information from those not close at hand.
5. Interview to secure unrecorded information close at hand.

Since the subject of methods of securing data is of enough importance to require that a special chapter be devoted to it, it is not necessary to go into any great detail as to the conditions under which one or the other of these methods is appropriate for securing the desired results, or of whether several methods are necessary.

The framing of the questionnaire is also fully discussed in the chapters on *Methods of Collecting Data*. The questionnaire is invariably included in the working plan.

Deciding the Point of Attack and the Procedure for Gathering the Material

A part of the work of the preliminary analysis is the breaking down of the problem into its various subdivisions in order to isolate the main problem. This breaking down of the problem into its constituent parts usually shows the main divisions of the investigation and indicates the logical sequence of steps. Where to begin is, however, often a problem even though as Mr. Eigelbner³ has pointed out there are essentially only four ways to start the investigation of any problem:

1. With whatever logically comes first.
2. With whatever indicates the greatest opportunity for getting results.
3. With whatever has the most beneficial influence on the the work as a whole.
4. With whatever policy or other plans indicate as desirable.

³ EIGELBERNER, J., "The Investigation of Business Problems," p. 51, A. W. Shaw Company, Chicago, 1926.

Of these ways of beginning an investigation only one needs comment, number four, the phase of the subject that policy or other plans indicate as desirable. In practically every investigation the desires and wishes of the client must have consideration. The condition can only be met satisfactorily by the tact and diplomacy constantly necessary in human relations.

The procedure, as has been pointed out before, has been pretty well standardized in certain types of reports. A procedure for making a market analysis as standardized by the Outdoor Advertising Association of America Inc., is as follows:

PROCEDURE FOR MAKING MARKET ANALYSIS (Short Form)

- | | |
|--|---|
| Secure the
basic data | 1. Secure from the City Clerk or the City or County Assessor, the total assessed valuation of the residence properties in each ward of the city. |
| Tabulate
assessed values | 2. Find out from the City Clerk or Assessor the relation between the assessed value and the true value. The assessed value will be some percentage of the true value. |
| Compute and
adjusting the
groups to true
values | 3. Calculate the <i>true</i> value of the residence property in each ward. Do this by dividing the total assessed value for each ward by the percentage figure obtained in paragraph No. 2. For example: The total assessed value is \$2,520,000 and the Assessor says he makes assessments on a basis of 90% of the true value, divide 2,520,000 by 90, which gives 28,000. Multiply by 100—result, \$2,800,000, true value. |
| Compute and
adjusting to
actual number
of families | 4. Get information from the Assessor, the Appraiser for the local Building and Loan Association, the Secretary of the Real Estate Board, the leading real estate dealers, or any other reliable source, as to the average amount of rent paid per house in each of the wards. The range will probably be from 7½% to 12% of the true value. |
| Calculating the
final values from
which the incomes
are to be
computed | 5. Using the per cent given, calculate the total rental value for each ward. For example: The per cent given is 8½%. The true value of the residences is \$2,800,000. Multiplying \$2,800,000 by 8½% gives \$238,000 as the rental value. |

Calculate
the
rent totals

6. Get information from the same source as noted in paragraph 4, also from the Secretary of the Chamber of Commerce, Secretary of the local labor union, Building and Loan Appraiser, or any other reliable source as to the average percentage of income spent for rent. (This per cent will hold for home owners as well as renters. The interest on investment, taxes and depreciation generally amount to *more* than the average rental value.)

Calculate in-
come from the
rent totals

7. Divide the rent total as found in paragraph 5 by this percentage figure and multiply the result by 100.
Example: The per cent of income spent for rent is given as $18\frac{1}{2}$ and the estimate rent total is \$238,000: Dividing 238,000 by $18\frac{1}{2}$ and multiplying the result by 100 gives \$1,286,486 as the total income for the ward.

Computing
calculations

8. Calculate for each ward in the same manner.

Analyzing the
expenditures

9. Make the market analysis by calculating the portion of income spent for certain classes of goods and services according to the following budget taken from a report by the United States Labor Bureau:

Rent	$18\frac{1}{2}$ %	Men's Clothing	6.0%
Food	$23\frac{1}{2}$ %	Women's Clothing ..	8.6%
Furniture	3.3 %	Children's Clothing..	6.6%
Laundry	2.65%	Shoes	3.0%

TO MAKE MARKET ANALYSIS MAP

Use information gathered when making general inspection as to physical layout of—

1. Principal Business District.
2. Community Centers.
3. Low Class Residential.
4. Medium Class Residential.
5. High Class Residential.
6. Industrial Manufacturing.
7. Wholesale.

Then apply data gathered in paragraphs 1 to 9 above to the seven classifications of districts, making the boundaries of these latter districts conform as nearly as possible to ward boundaries or other commonly accepted boundaries for definite units of population within the city.

The procedure of making consumer investigation by advertising agencies is suggested by the procedure enumerated on pages 72-74 concerning scope and method. It will be noticed that representative cities are selected in which interviews will be made. The city will be divided into three distinct types of residential areas classified as high, low, and medium. In each city at least two areas of *each* of these types will be covered, areas chosen far enough apart to insure the opinion of one neighborhood against influencing that of another. And fifty to one hundred interviews will be made in each class depending on the nature of the problem.

The procedure of making a trade investigation by newspapers is indicated by the following section entitled *Nature and Scope of the Survey* of a *Chicago Tribune* survey:

NATURE AND SCOPE OF THE SURVEY

The purpose of this survey was to gather certain information concerning the sale and distribution of Clean Tooth toothbrushes among the retail stores of Chicago. The inquiry was also conducted in such a manner as to bring out the extent to which the dealers were using the new Clean Tooth display material and to test the dealers' familiarity with the new Clean Tooth products.

A total of 40 calls were made upon the various types of retail outlets for Clean Tooth toothbrushes. These calls were made upon a selective basis with the idea of obtaining a typical cross-section of the situation among all the types of stores located in neighborhoods ranging from the best to the poorest. Included in the 40 calls were:

- 2 loop department stores—The Globe, and Century
- 3 chain drug companies —Smith Company (7 stores)
Brown Company (90 stores)
Williams Company (4 stores)

35 independent stores distributed according to the map below:

- a. 12 of the independent stores were rated good
- 12 of the independent stores were rated fair
- 11 of the independent stores were rated poor

The following table shows the ratings given the independent stores and department stores in comparison with the class of neighborhood in which they are located. The table does not include the chain stores.

Store Ratings	Number of Stores	Neighborhood Ratings		
		Good	Fair	Poor
Good.....	14*	13	1	..
Fair.....	12	4	1	7
Poor.....	11	..	..	11
Totals.....	37	17	2	18

* Includes the two loop department stores.

It will be noted in the above table that the store ratings tend to correspond fairly well with the ratings given the stores visited. The more equal distribution of the stores according to their individual ratings was the result of a deliberate selection of the stores visited; the neighborhood ratings are somewhat less definite. No attempt has been made to compare the store and neighborhood ratings of the chain store groups, but it is safe to say that the former would probably be high and that the individual stores would be located in neighborhoods ranging from good to fair.

The questionnaire which was used in this investigation is as follows:

1. Do you sell Clean Tooth Tooth Brushes?
2. Is the new cabinet being displayed on the counters in the drug stores?
3. Have you had an increase, decrease, no change, in sales of Clean Tooth Brushes?
 - (a) This month over the previous month
 - (b) This month over the same month last year
 - (c) The first six months of this year over the last six months of last year
4. Are you familiar with all three brushes?

Planning for the Formulation of Data

Determining the best technique for recording and analyzing material is also a matter of importance in making working plans for a report, and the discussion is likewise left for a later chapter. The problems to decide while making the working plan are:

1. When shall data and opinions be assembled—as it comes in or after it is all in,
2. What bases of classification shall be used?

3. What method of recording shall be used?

Cards

Loose leaf notebook

Recapitulation sheets.

The chief object of planning the formulation of data when making the working plan is to test out the adequacy of the bases chosen in classifying the data, and in recording that to be brought in by the questionnaires. Sometimes test questionnaires are sent out to serve the investigator with data with which to work in drawing up his recapitulation sheet, in organizing his files, or in arranging the sheet on which he has kept a record of details of name, address, etc., for persons.

Making a Tentative Outline

The tentative outline of the final report has been blocked out roughly in the second step of the preliminary survey, the analysis of a problem into factors. As soon as the investigator knows the factors, he knows the topics to guide himself in framing questions for the questionnaire. As soon as he knows the relative importance of factors, he will know the arrangement that he should give this material in his outline. Knowing topics and arrangement, it is a simple matter to break major problems into minor problems, indicate their subordination to main problems, and draw up an outline.

The following outline suggests the tentative form of organization which material assumes in the working-plan-stage of the investigation. Although it needs much working over to distinguish between main and subordinate points, it is the basis of the finished outline.

Determination of Classes of Apparatus

Which Should be Manufactured in Blank Products' Shop

Purpose

This study is to be directed toward the definition of the responsibility and scope of the Blank Products' Shop, with particular reference to the character of work for which it should function, and the factors which influence the transfer of work out of this branch to the Operating Departments of the Works.

Digest of Impressions

As the Blank Products' Shop has been set up to manufacture with economy and dispatch certain classes of apparatus up to a point where the production of such apparatus is no longer special to the methods and procedure of the Operating Branch, it is intended to define clearly the point at which this division occurs and to so identify such apparatus as to direct automatically its manufacture in the most economical channel.

Tentative Plan of the Final Report

The study will proceed on lines calculated to provide the answer to the following points:

1. What factors should influence the placing of work in the Specialty Products' Shop for initial manufacture?
 - (a) Apparatus in which the design has not been fully worked out?
 - (b) Apparatus to meet requirements essentially different from those applied to our regular telephone product?
 - (c) New apparatus upon which future requirements cannot be set with certainty?
 - (d) Apparatus for which the demand is intermittent?
 - (e) Apparatus susceptible to frequent design changes?
 - (f) Apparatus of a highly competitive type not subject to the usual quality standards?
 - (g) Emergency orders for the production of which standard tools and facilities are not available?
 - (h) Apparatus requiring specialized treatment to produce?
 - (i) Special orders for experimental or development work which would disrupt the practice in the Operating Branch?
 - (j) Apparatus ordered in quantities which do not justify the cost of tools which would be necessary for production in the Operating Branch?
2. What are the considerations which would indicate the transfer of work from the Blank Products' Shop to the Operating Branch?
 - (a) What stage of design of apparatus?
 - (b) At what point in production program?
 - (c) Similarity in character or type to standard telephone apparatus?
 - (d) After elimination of all design or manufacturing troubles?
 - (e) When operations and methods have become fixed?
 - (f) Future demand and its effect on standardized tool equipment?

Preliminary Statement of Conclusion

After the above points have received due consideration and have been reduced to clear definition, an instruction or routine will be issued to guide the future assignment of work.

CONTENT OF THE WORKING PLAN

An examination of the outline just quoted furnishes three of the elements usually found in a working plan, the digest of impressions, the tentative plan of the final report, and the statement of preliminary conclusions. This outline omits the questionnaire, because of the nature of the investigation, and the statement of procedure for carrying out the program of work necessary to gain the information needed for the final report; hence to illustrate how the steps in the procedure are usually presented in the outline of the working plan, a section is taken from the working plan of a project supplementary to one just considered.

Example of Working Plan

Organization Best Suited to the Functions of Specialty Apparatus Shop

Purpose

This investigation will start upon the basis of providing for the manufacture of apparatus to be determined under Blank Development Project No. 3.03, the type of organization best suited to carry out the functions of the Specialty Products' Branch.

Procedure

The branch is at present functioning under four decentralized operating departments in each of which work of a similar nature is performed.

It is intended first to analyze the kind of apparatus made in each department and to study the advisability of grouping similar manufacturing functions.

Secondly, to determine the advisability of segregating functions not strictly of an operating nature but now performed in each of the operating departments independently.

Thirdly, to investigate the economy and efficiency to be expected by rearranging departments on the basis of functional responsibility, combining all similar functions under common supervision.

Fourthly, to study the administrative organization necessary to carry out the above plans providing changes in the present methods of procedure are approved.

The final function which the working plan performs is to serve the client or executive with an adequate basis for deciding whether or not the investigator will *proceed with or drop the investigation*. It is, of course, intended to give him a clear idea

of the scope, method, and possible results. With these in mind the executive is in a position to give *further information* or to suggest more searching analysis of the problem. If he forms an *unfavorable impression*, he can order the investigation halted before an undue amount of money has been expended. If he forms a *favorable impression*, he will, of course, give his approval for the investigation to proceed.

Since a complete working plan is so highly important in getting the results anticipated, because it guides the investigator in his work and serves the client or executive with the basis for deciding whether or not to proceed, there is much reason to recommend as finished a tentative outline as is possible under the circumstances of time, money, and knowledge. One expert investigator of business problems presents a high degree of mastery of his technique as is exhibited by the following preliminary report.

Preliminary Memorandum on Organization and Methods of The Blank Co.

Sec. I. Recommendations on Organization

1. Present Organization
2. Recent Developments in Organization
3. Suggested Organization of General Offices
 - A. V. Pres. Charge of Plant.
 - B. V. Pres. Charge of Run
 - C. V. Pres. Charge of Sales
 - D. Treasurer
 - E. Controller
 - F. Traffic Manager
4. Organization for Research
5. Personnel Problems

Sec. II. Recommendations on Executive Reports

Uses of Reports

Executives can obtain information concerning affairs under their jurisdiction.

1. By personal observation
2. By contact with subordinates
3. By use of reports

Recommendation on Executive Reports

1. Need for Executive Reports in your company
2. Former uses of reports

3. Requisites for satisfactory reports
 - A. Summarized information
 - B. Show tendencies
 - C. Uniform for all executives so far as possible
 - D. Comparisons between estimated and a dual performance
 - E. Standards by which to be judged
4. Suggested procedure for developing executive reports

Sec. III. Co-ordination and Control of Activities

1. Importance of Problem
 - A. Sales
 - B. Productions
 - C. Inventions
 - D. Finances
 - E. Advertising

Such high degree of development in a working plan is made possible only because some well-founded ideas as to probable conclusions had been formed. From these ideas have developed the hypothesis which guides subsequent work.

In a backward glance at the working plan, it is well to check its content to see what it contains:

1. A digest of impressions received.
2. A tentative plan of the final report.
3. A copy of the questionnaire to be used in an investigation.
4. Outline of steps of the procedure for the work.
5. A statement of preliminary conclusions.

Only when these elements are present is it possible for the person to whom it is submitted to:

1. Form an adequate idea of the scope, method, and possible results.
2. Form a satisfactory first impression of the investigation to be made for him and the report to be written for him.
3. Gain the approval of the executive who will pass upon the proposals for the investigation.

CHAPTER VIII

METHODS OF COLLECTING DATA

I. The Importance of the Method of Gathering Data—II. Various Methods of Securing Data—III. Bibliographical Method—IV. Observation—V. Interview: A. Practical Value of the Interview; B. Disadvantages of the Interview; C. When It Is Used; D. Requisites of One Who Does the Interview; E. Who is Interviewed; F. Preparation for the Interview; G. The Approach; H. Manner of Conducting the Interview; I. Recording the Interview; J. Factors in the Home Office Affecting the Success of the Interview.

With a definite understanding of the elements of the problem, the nature of data, quantity required, and the sources, the investigator has yet to consider the possible methods of collecting them before he is able to decide upon the best procedure to obtain whatever is necessary in any specific investigation. This best method is, however, as was indicated in the chapter on the working plan, clearly based upon the nature and form of the data required by the problem and upon the nature of the sources.

THE IMPORTANCE OF THE METHOD OF GATHERING DATA

In the investigation of any business problem, the gathering of facts is of the utmost importance because it occupies a strategic position in relation to the rest of the investigation. Upon the accuracy and the extent of gathering facts depends the success of all subsequent steps. The raw materials gathered are later, through comparison, analysis, and synthesis worked up into conclusions and recommendations. This step also has importance because of the time and money that must be spent to make it successful and because of the great opportunity for waste and inefficiency in it.

VARIOUS METHODS OF SECURING DATA

The methods of securing data are observation and experiment, bibliographical, interview, and questionnaire. The simplest and the most intensive type has been given first; while the most complicated and extensive type is given last. In any investigation, the method of gathering data employed first should be the one yielding the greatest advantage. This is usually the bibliographical method because information in written form is easily accessible. Company records yield rich reward if satisfactory internal statistics have been kept. They give, moreover, data which can be found nowhere else. Company records, although not the most important or the most significant, are the most tangible and the most certain. The advantage of these two sources of data are that they are cheap and accessible. Personal visits and interviews, on the other hand, yield three or four times as much information and are to be relied upon when all else fails. Because they are the most costly, however, they are not to be used when others are practicable. The questionnaire is to be used when the success of an investigation depends upon getting information from a considerable number of people located in many places. It is used after published sources have been exhausted and internal records of the company have been utilized to the limit. It, with the interview, is sometimes used to fill gaps in the material found in libraries or company files. The disadvantage of the questionnaire is that it takes time to secure results, and it takes skill and knowledge in its use to make it successful.

In surveying the possible methods to be used in a specific investigation, it will be found that every investigation is a law unto itself. Every type should be reviewed when considering which will be the most valuable in reference to the investigation at hand. In many surveys every method of investigation is used. In almost every survey, however, bibliographical research should be brought into play before any final conclusions are formed.

BIBLIOGRAPHICAL METHOD

The purpose of bibliographical research is to obtain knowledge of the field, to discover the extent to which the field has been investigated, and to keep from duplicating what has been

written. Its importance is attested by Mr. Thomas A. Edison thus:

"When I want to discover something, I begin by reading everything that has been done along the line in the past: I see what has been accomplished by great labor and expense in the past; I gather the data of many thousands of experiments as a starting point, and then make many thousands more."¹

Another says: "Many times an experiment costing \$2000 can be found on library shelves." The special libraries are repositories of information. They often prove successful devices for saving expensive research into problems which have already been solved, and there are many libraries throughout the country, 146 of such libraries in New York alone. In them, the investigator may find particular information, correlated information, and general information. It is the business of a special library to keep a research staff and executives in touch with new developments in their field.

Much expense is saved by cutting out needless research. Information may be found in books, newspapers, monographs, encyclopedias, trade associations and organization reports, and publications. The investigator must know how to use the library effectively in order to unearth the statistical or economic treatises published by federal, state, or university. He should, if he is doing strictly research work, know what men are working in allied fields or from different angles. It is wasted effort to send men to gather data laboriously that has already been gathered. The professional as well as the "tenderfoot" investigator makes use of the Readers' Guide, and Indexes for different professions such as Industrial Arts, Engineering Index, Agricultural Index, Newspaper Indexes, Federal, State and City Indexes.

In preparing the bibliography, cards are perhaps the best method of recording references, because of the ease in arranging them. The size of the card depends on whether the same one is to be used for recording data. Bibliographical matter necessary for book references is: name of author, title of book, volume or edition, number of pages, year of publication, name and address of publisher, and the price. For magazine articles: title of the

¹ EIGELBERNER, J., "The Investigation of Business Problems," p. 116, A. W. Shaw Company, Chicago, 1926.

article, name of author, name of magazine, volume number, pages of the reference, date of issue.

Style for books—Whether the name of the book or author comes first depends on which the investigator wants to give prominence to in his bibliography. Sometimes, he will run two lists, one with the author first and one with the title first.

The generally accepted style for books, subject to slight modifications, is:

Jones, D. G. and Smith, F. H., "Land Economics," 450 pp.,
Hooper Co., New York, 1927, \$3.50.
Radiator Construction, Cox, S. B., Vol. II, 3rd ed., 400 pp.,
B. W. Slow Co., New York, 1928, \$4.00.

Total number of pages, year of publication, and publisher are given to indicate age of data, completeness of the discussion and where to buy the book. If the title is translated from a foreign language, it should be specified.

For footnote reference to books, the actual page numbers from which the quotation is taken should be put on the card. The total number of pages in the book, as shown in the illustrations above, is the most commonly used style for the bibliography in the appendix.

Magazine articles—The general style used in Readers' Guide for periodical literature is an accepted and perhaps easiest source for reference. For ordinary usage, the style for magazine articles is:

Larger profits from Collection Letters, A. O. Carter, *Printers' Ink*, 137: 113-114, Dec. 2, 1927.

If the name of the author is of most importance, the order of author and title may be reversed. Volume, page numbers, and date are given so that the article may be found easily whether the magazine is bound or not.

When the bibliography is being prepared from the card catalogue of a library, the addition of the library call number will save hunting the reference a second time.

Abbreviations may be used, in fact should be used—so long as they are recognized abbreviations. To do so saves space and is just as intelligible to the reader accustomed to handling bibliographical material. Do not coin abbreviations, however, because they may not be understood by the reader. Accepted ab-

breviations for books and magazines will be found in Readers' Guide and the United States Catalogue.

The title should be set off from the author in some manner, usually by underlining, italics, or quotation marks.

The last page of the appendix should contain the complete bibliography. This may contain books, magazines, pamphlets, papers—any source of material that has been referred to in the body of the report and to which a reader might wish to turn for a more detailed study of any particular source mentioned.

The following list of basic sources will be suggestive to the investigator in collecting material. A complete list of sources that would include all the different indexes, trade journals, year-books, etc., would take more space than is justifiable. Any good librarian can supplement this list and add specific titles where general heads are indicated.

Readers' Guide to Periodicals

International Index to Periodicals

Industrial Arts Index

Engineering Index

Agricultural Index

Accounting Index

United States Catalogue of Books

Cumulative Book Index

Annual Magazine Subject Index

New York Times Index

Index to Legal Periodicals

Book Review Digest

Commerce Year Book

"Shipping World" Yearbook

Encyclopedias

Card Catalogue

Union List of Serials

Public Affairs Information Service Bulletin

Catalogue of United States Government Public Documents

Publishers' Trade List Annual

Kelly's Directory of Merchants, Manufacturers, and Shippers of the World.

Moody's Manual

Poor's Manual

Thomas' Register of American Manufacturers

Ayer's Directory of American Newspapers and Magazines

Cannons' Bibliography of Industrial Management

Newark (N. J.) Public Library 2600 *Business Books*

Mudge New Guide to Reference Books

Who's Who in America
Current Periodicals
Trade Journals
Government Publications
University Publications
Publications of professional association and organization
Statistical abstract of the United States
Library of Congress—Division of Bibliographical References in various subjects.
Book lists from publishing houses
Periodicals giving lists of latest publications in abstract form

OBSERVATION

Observation, as a means of securing data, is a matter of recognizing and of recording things which come to one's notice. It is something more than seeing—attention and perception must be added to seeing to make it observation.

Because observation is complex, it can be better understood in terms of these elements which make it up: sensation, attention, and perception. Sensations are the impressions that are gained entirely or partially through the various sense-organs. Attention is the act of concentrating on a subject. And perception is the interpretation of the reports of the senses by the mind. Through this last element of observation—perception—observation justifies its definition “seeing with a purpose.” Perception is getting the significance of things.

There are two types of observation—observation of phenomena under real conditions, and observation under arbitrarily created conditions. The two are sometimes differentiated as observation and experiment. As an example of observation under real conditions, one may cite the method which a chain store system uses in collecting data relative to locating a store at the intersection of two streets. Investigations are detailed to find the amount of traffic, vehicular and pedestrian, passing a prospective location. It is obvious that the investigator does not control conditions, and that the observation is made in a real world. If, on the other hand, the investigator is trying to decide what conditions should determine the location of the cigar counter in a drug store, he will study the sales when the counter is near the door, near the soda fountain, in the center of the room, or in the rear.

To aid an investigator in successfully applying observation in the analysis of business problems certain rules have been formulated which will help the investigator, such as:

1. Formulate the problem clearly.
2. Assume the proper mental attitude.
3. Observe one thing at a time.
4. Get the proper perspective.
5. Get all the essential facts.
6. Exclude all irrelevant facts.
7. Cultivate a questioning attitude.
8. Make written notes.
9. Consider the human element.²

The peculiar asset of observation, as a method of investigation, is worthy of special comment. Things which one experiences himself make a more lasting impression on the mind than the information gathered in any other way. The true significance of data becomes apparent only when it becomes a part of one's own experience. If one gathers the data himself, he has a better chance to make them a part of his own experience.

INTERVIEW

In solving business problems, the experienced investigator relies a great deal on the interview both in his preliminary analysis, and in the final gathering of data. He consults individuals who have expert knowledge of the subject at hand. For example, Mr. Percival White in attempting to determine a product suitable for the Spicer Company to manufacture, the investigation referred to in Chapter II, interviewed such people as the Managing Editor of the *Gas Age-Record*, the Editor of *Printers' Ink*, the Director of Crowell Publishing Company, the Assistant Advertising Manager of *Iron Age*, etc., people who would be in the best position to offer valuable information or opinions. The investigator's purpose in the interview is to find out what another person knows that will help him in the solution of his problem, and to supply the conditions or stimuli that will cause the man interviewed to give out this information.

² EIGELBERNER, J., "The Investigation of Business Problems," p. 101, Shaw Company, Chicago, 1926.

Practical Values of the Interview

As a method of collecting data, the advantages of the interview are many. Information may be thus obtained which could not be obtained in any other way. This fact is true because people in conversation will give information which they would never put in writing. The one who has the ideas may dislike writing or lack confidence in himself. He may not wish to put on paper, even in the form of answers to a questionnaire, information concerning the company's business. Moreover, matters of utmost importance are almost always available through conversation before they are available through writing.

The interview has the advantage of flexibility. One personality is matching wits against another personality. The experienced interviewer will change his tactics to suit circumstances, always to the end of controlling the interview. Another advantage is the informality which causes a person to talk without restraint. Either written questions or note taking causes inhibitions. With these advantages the interview can be as valuable as personal observation.

Disadvantages of the Interview

The disadvantages of the interview are to be guarded against. It is possible, as has been pointed out, that the person being interviewed in market surveys, for example, tries to understand the interviewer's mind and hence bends his facts one way and another to suit the interviewer's desire. Conversation may invite inaccurate and offhand statements. The flexibility of the interview may lead to waste in time, and hence money, in conducting the investigation.

When It Is Used

The interview is used when the commercial problem is complex and involved, and the inquirer knows little about the facts of the problem. In such a case, a call on an actual or potential user is more likely to give satisfactory results in getting a view of the whole problem than is any other method. The personal interview is also used to compare answers in interviews with answers secured by mail. If the questionnaires returned come largely from users of the product, their value will be impaired. When the interview is being employed to check the information secured by the questionnaire, sampling is done. One interview will be made for ten, fifty, or a hundred questionnaires.

In cases in which the only data available are those of opinion of experts, the interview is extremely valuable. Its value depends on a consensus of opinion among the experts interviewed. For example, in considering the production of a new commodity, specialists to interview would be carefully chosen in varied fields, such as: patent attorneys, engineers, merchandising experts, and distributors.

Requisites of One Who Does the Interviewing

The fundamental qualifications of an investigator that conducts interviews are that he can adapt himself to the type of person whom he is to interview, in other words so that he can adapt himself so as to make a sympathetic contact. Unless he can create a sympathetic contact with the person he is interviewing, even though he is armed with authority, he will meet coolness and hesitation. The ability to adapt depends upon understanding of human nature and liking for people. The interviewer needs to be courteous to attain a rich reward in answers; resourceful to take advantage of any opening that is his; and imaginative, to see how the other person is seeing and feeling. Like the Apostle Paul, he should be "all things to all men." He needs to be an active person with energy and a particularly open and impartial mind. He needs the optimism of a salesman tempered by the critical faculty that enables him not only to take a market problem to pieces but to "bore in" and get data.

In market surveys, it is advisable to use such men as interviewers as will not unconsciously antagonize. A northerner may arouse prejudices in the South and vice versa. The social gap between the person interviewed and the person making the interview must not be too great. In all of the consumer surveys conducted by the Bureau of Agriculture the information is gathered by men and women who are well educated and are usually students of economics.³ Finally, the interviewer should have the quality of reliability, for he must report faithfully what he is told; he must possess a good memory; and he must be able to control the interview so as to secure the required information.

³ "Keeping Consumer Investigations Free of Bias," *Printers' Ink Weekly*, p. 69, Aug. 25, 1927.

Who Is Interviewed

Every authority on the investigation of business problems places the utmost importance upon who shall be interviewed. Concerning this subject, one says:

“Foresight and astuteness in picking out those who possess expert knowledge on the subject often saves considerable time.”

Another:

“The matter of choosing suitable individuals for interrogation is highly important and will have much to do with the successful culmination of the survey.”

Interviewing is one phase of “sampling” information, opinions, and impressions. Its success depends as much upon representative people being selected to be interviewed as upon the selection of questions.

Preparation for the Interview

Preparation for the interview has to do with two things: insuring a favorable reception from the person called upon, and preparing the interviewer. It is necessary to learn everything possible concerning the education, responsibility, and personality of the one interviewed.

The favorable reception will depend upon securing:

1. The right time and place for it by telephone or letter.
2. The right emotional reaction by means of introductory letters.
3. The right mental reaction by means of interesting the person interviewed.

The interviewer is prepared by:

1. Studying the prospects.
2. Carefully phrasing, in his own mind, the questions he wants answered.
3. Understanding the definitions of perplexing terms which for the sake of uniformity are given each interviewer.
4. Having a thorough knowledge of the purpose of the interview.

In preparing the questions the investigator will consider whether or not the questions are:

1. Definite and to the point.
2. Have logical sequence.
3. Are as few as can be to cover the subject.

Since the success of the interview depends very much upon the strategy of the interviewer, adequate preparation is all important to success.

The Approach

Unless the interviewer has secured an entree through a mutual acquaintance, a credential that is readily accepted, or letters of instruction emanating from the proper authorities, he must rely upon the same resources as those of a salesman. He gauges the motives that govern the men to whom he appeals, and links his request to their self-interest; or to the man's personal interest in the ultimate findings of the investigation. Sometimes, he can take advantage of the fact that most people like to teach; he may appeal for cooperation from the women on the grounds of their helping other women; at other times, he appeals to curiosity. In every interview, the controlling factor in its success is compatibility of personalities.⁴

Manner of Conducting the Interview

No set rules can be written down concerning the manner of conducting the interview. Its success will always be dependent on intelligent adaptation of the conduct of the interview to its object; the psychological elements in the situation; and the time, place, and circumstances of the interview. Mr. W. C. Schluter has detailed comprehensively these psychological elements:

1. Approaching the parties.
2. Asking the questions or exchanging ideas.
3. Keeping to the subject.
4. Stimulating responses.
5. Timing the length of the interview.
6. Handling differences of opinions.
7. Obtaining definite and correct answers.
8. Seeking private or confidential information.⁵

⁴ SANDFORD, W. P., and YEAGER, W. H., "Business and Professional Speaking," Chaps. XVIII-XXIV, on "The Personal Conference," A. W. Shaw Company, Chicago, 1929.

⁵ SCHLUTER, W. C., "How to Do Research Work," p. 83, Prentice-Hall, Inc., New York, 1927.

A few general ideas on conducting the interview might be mentioned. When coming as a stranger with no introduction, the interviewer should make clear that his purpose is not to sell anything; that he desires only information. If possible, he should tell enough about the project to arouse favorable interest. The person interviewed should be kept talking, the interviewer merely guiding the conversation and leading it back to the subject when there is a tendency to digress. Occasionally it will be advisable for the interviewer to comment on the other side of questions to secure complete views, although he should not be persistent.

Example of questionnaire used in the interview during the Investigation into the Sale and Distribution of Breakfast Suite Furniture in the City of Chicago.

Dealer's Name.....

1. How many breakfast suites have you sold in the last 12 months?

Table and chair suites

Suites including sideboard and china closet

2. Minimum price

Maximum price.....

3. What makes?

(Write in the
order of sales
volume.)

.....

.....

4. Is it your opinion that the popularity of breakfast suites will continue?
How long?

5. How many breakfast suites do you think you will sell in 1929?

6. Would national advertising of a trade-marked breakfast suite help your
sales?

7. What type of advertising would you want the manufacturer to do to
help you sell breakfast suites?

Newspaper Magazine

8. What class of people buy breakfast suites?

Wealthy Poor Middle Class

9. Are breakfast suites bought for dining-rooms as well as breakfast
rooms?

Recording the Interview

On the matter of recording before people the data obtained in interviews, authorities differ greatly. Some say that people "shut up like a clam" as soon as they see their answers to questions being recorded. For this reason, investigators are advised to use such strategy as to record answers on a folded newspaper or to depend upon memory for jotting answers down after the interview. Supporting this advice are instructions from two advertising agencies. "The best way of securing the information desired is by engaging the consumer in conversation if possible. It is best to keep the questionnaire out of sight until after the interview is completed. Otherwise the consumer may get 'stage fright' and refuse to talk."

As one company instructs its callers,

"It will usually be impossible to record answers in the presence of the informant, due to alertness necessary to hold the informant's attention, keep the conversation going, to secure straightforwardness in answers, which often is not done when a person sees you writing down everything he says. Each investigator should practically memorize the questions in such a way as to be sure of bringing up each point, although some will usually be covered out of the sequence of the questionnaire. The questionnaire should be carefully filled out **after each** interview, the most frequent weak spots in the interviews observed and an effort made to correct these in the next interview."

Other authorities say that the answers can be recorded successfully during the interview if the questions have been intelligently planned and if the investigations are seeking policies instead of details.

Other than the purely mechanical recording of answers secured during the interview, the skilled investigator who is recognized as an authority may use more latitude and present the result of his interview in the form of a digest, sometimes interpolating his own comments.

The following three examples illustrate different phases of this method:

A. Traveling seemed to offer the best opportunity for making savings. A study showed that salesmen were given to canvass unsystematically, both

in respect to the territory they covered and the time at which they called on their prospects and customers. The guiding principle seemed to be a "hunch" that there might be an order in a certain place, and as a result they passed up calls on the way to call upon the "hunch." If, therefore, a salesman's work could be planned so as to make as few jumps as possible and also call only in those places where presumably the time of purchase was near at hand, the 40 per cent of traveling would necessarily be reduced and the chances of securing an order increased.

The main points of an interview are often presented in tabular form. For example, the following points were deduced by the investigator after securing from within the organization being served the Sales Limitations for any new product which they might manufacture.

B. 1. One which could be sold to an industry analogous to the automobile industry.

2. One which would not call for a sales force entirely different in character of the present sales force.

3. One which would meet a ready reception by a market of considerable size and value.

4. One which would not be superseded in the near future by some competing product.

If only authorities have been interviewed, and they are consequently few in number, a digest of opinions are recorded for each person interviewed. For example,

C. Interview with Mr. Blank, Editorial Department, Blank Publishing Company, New York. As Mr. Blank is very familiar with sources of information, and has a considerable knowledge of marketing and marketing research, I asked his opinion. He suggested that a good way to obtain views as to the comparative merits of various industries would be to consult a number of bankers. These men are in a position to judge of the importance and progress of industries, and to make fair comparisons between them. Bankers are also often approached by promoters and others who have new products to manufacture, and are thus able to put in touch with new development. Mr. Blank gave me the names of several bankers and financial experts whom he thought I might advisedly consult.

Factors in the Home Office Affecting the Success of the Interview

A word needs to be said on factors conditioning the success of an interview which the investigator does not control. Helps

for the field investigator have been summarized by a seasoned research director as follows:

1. Need of real cooperation from the home office.
2. Enough questionnaires to last through the job.
3. Sufficient supply of return stamped envelopes for reports to be mailed each night.
4. Some one in the office to follow field worker's route.

CHAPTER IX

METHODS OF COLLECTING DATA (Continued)

QUESTIONNAIRE

I. Definition—II. Elements of the Questionnaire: A. Example of Questionnaire—III. Disadvantages of Questionnaires—IV. Subject Matter of Questionnaire—V. Grouping of Questions—VI. Dropping Repetitious Questions—VII. Salesmanship of the Questionnaire: A. Salesmanship in the Covering Letter; B. Persuasion in the Questionnaire—VIII. Phrasing the Questions: A. Consistency in Point of View; B. Types of Answers; 1. Categorical Answers; 2. Answers of Opinion; 3. Numerical Answers—IX. Typical Errors in Phrasing—X. Mechanics of the Questionnaire—XI. Determining the Number of Questionnaires—XII. Testing the Questionnaire—XIII. Preparing the Mailing List—XIV. Sources of Mailing List—XV. Testing the Results of the Questionnaire.

Whenever the nature of the investigation requires, the questionnaire is to be employed to secure data after published sources have been exhausted and internal records of the company utilized to the limit. Its purpose is, of course, to secure a cross section of fact, of opinion, or typical cases that will help to solve the specific problem.

DEFINITION

A questionnaire is a series of questions which when properly answered by the person to whom it is sent, will furnish the sender with the desired information. A good questionnaire is, of course, one that gets results, one that secures a large enough number of adequate replies that it is possible to make logical deductions from the data given. In character, it is formal and impersonal. The questionnaire in business is not the elaborate and exhaustive kind used in scientific research.

ELEMENTS

The usual elements of the questionnaire are :

(1) The *heading* which establishes a contact between the writer and its recipient; i.e.

A. United States Department of the Interior
Bureau of Education
Lands Grant College Survey
Questionnaire
Individual Staff Inquiry

B. General Outdoor Advertising Company
Department Business Analysis
Consumer Survey

(2) The various *subjects* with which it deals; i.e.

A. Dealer Investigation of Products Using Curled Hair
By Means of

1. Furniture Questionnaire.
2. Mattress Questionnaire.

(3) The *introduction* to the questionnaire, i.e.

“The returns from this inquiry will be utilized in a number of questionnaires to be filled in by the institution. Please fill in all questions numbered 1-17 which are applicable. Questions 18-30 should be filled in only by members of the staffs indicated. These returns are confidential in the sense that no information with reference to the individual will be furnished on the basis of this questionnaire.”

(4) A *covering letter* which is a kind of appeal for assistance to give significant factors: i.e.

A.

Dear Sir:

For some reason you never told us what you finally decided to do about your garage. If you *haven't* given up the idea of building one, we want to keep you posted by sending you our catalogues from time to time. If you *have* given up the idea or made other arrangements, we want to take your name off our lists and not bother you any more.

We certainly will appreciate your kindness if you will answer these simple questions:

Are you still interested in building a garage? _____

If so, when do you expect to build it? _____

Did you find the garage you wanted in our Catalogue? _____

You don't have to go to a lot of bother in writing. Just a word or two in pencil will do. A stamped envelope is enclosed for your convenience.

Thanks.

Yours truly,

Name

Street

City

B. Your name has been given us by as a regular user of several of the products in our complete line. We are glad to take this opportunity of thanking you for your past patronage, and are also asking you in our first letter to do us a favor and help us solve a problem.

On a separate sheet we have listed our entire line of thirty-eight separate items with a voting square opposite each. Will you, as a personal favor to us, mark down a number opposite the five items you would want us to keep in case we discontinued all the other items in the line? We are seriously considering the idea of dropping all except five products, and are coming direct to you to aid us in their selection. We don't want to stop making your favorite. Will you please indicate in order the five you want us to keep? This action would be greatly appreciated.

Sincerely yours,

P. S.—We shall be much pleased to send each voter a sample box of our latest product.

Example of Questionnaire

The following questionnaire was used in a market survey of Blank Lard for dealers:

- Name of Dealer
 C. R.
 Chain Delicatessen
 1. Lbs. of Blank Lard Sold Per Average Week:
 In Cartons
 In Tins
 Other Forms
 Total
 2. Percentage of Total Handled Packed In Cartons
 3. Average Single Sale Per Customer
 4. Brand Handled.
 S
 M
 A
 P
 L

DISADVANTAGE OF QUESTIONNAIRES

The disadvantage of the questionnaire is the difficulty in getting replies and the time it takes. Often, it unearths little more than mere statistical information. The brusque "yes" and "no" do not elaborate, divulge the motive behind the answer, or the taste.

As an example of the disadvantage of trying to make accurate judgments concerning a situation on the basis of the answer to the questionnaire, we may cite the experience of a company which made a consumer's survey of washing powder. There were 839 replies; 242 reported themselves users of the washing powder and 593 reported themselves non-users. The investigator knew that no such percentage of regular users existed. The causes of the apparent inaccuracy were a tendency on the part of women to exaggerate; many users were not regular nor big users; an investigation in the poorer section of the city would have lowered the percentage of users. Common sense has to be applied to the interpretation of replies to make them usable.

SUBJECT MATTER OF THE QUESTIONNAIRE

It is fundamental to the success of a questionnaire that it contain the questions that will bring the information essential to the solving of the problem under consideration. The questions must bring neither too much nor too little information. A careful listing of what information is wanted will guide the investigator not only in determining what questions to include and what to exclude but how to word them. For example, the research director of an advertising agency when he wished to find out whether the advertising copy for a certain brand of gloves was right and whether improvements could be made in the merchandising, listed the following topics to guide himself in preparing the questionnaire for a consumer investigation:

Proportion of Blank purchasers vs. non-purchasers.

total

range by areas

comparisons of types of districts

Extent of purchases by customers

total

variation by areas

variation by types of districts

Likelihood of buying again

Reasons for not buying

at all by non-purchasers

more by purchasers

Use of telephone

previous experience

interest in

Attitude toward method of merchandising

First acquaintance with Blank brand

Blank brand advertising

Blank brand prestige

Important points in glove buying

Blank brand performance

Men's and children's gloves

Magazines

After writing down the topics he prepared a series of twenty-three questions to be used in interviewing the purchaser and a series of ten to be used in interviewing the non-purchaser.

GROUPING OF QUESTIONS

The questionnaire must be condensed as much as possible while still avoiding indefiniteness and ambiguity. Two questions should not remain on the questionnaire if one will serve equally well. To get the maximum results with the minimum number of questions, the investigator should write down what he wants answered. He should determine what information is absolutely essential. He may find that two or three questions can be made to secure all the answers for which he has prepared five or six. Questions ungrouped are likely to be concerned with subordinate issues, answers to which may be unnecessary when the main factors are unearthed. Subordinate questions grouped under main factors and arranged logically will enable the investigator to construct a complete picture from answers to a few questions.

If he finds upon analyzing a subject that more information is essential than can very well be asked for in one questionnaire, he must sort out his questions according to their applicability to different audiences and send one questionnaire to one audience and another questionnaire to another audience. Questions on the packaging of a product, for example, may well be referred to the consumer; on the effectiveness of the advertising, to the dealer; and on the technical aspects of the product, to the engineer, etc. No investigator can formulate one questionnaire that will cover all points. If it is found that the questionnaire to any one audience contains more than ten questions, the advisable plan is to send out a series of questionnaires to the same person.

DROPPING REPETITIOUS QUESTIONS

An examination of questionnaires of many firms will almost invariably reveal many repetitions. For example:

1. How many times have you bought Blackmore Hats? Kinds?
2. How long ago was the first order? Kinds?
3. How long ago was the last order? Kinds?

Another example of repetitious questions is:

1. How did you first learn of the Jones Investment Company?

2. Have you ever seen the advertising of the Jones Investment Company?

A careful checking of a questionnaire and the dropping of repetitious questions will cut down the length. Consideration must be given to the fact that one question may be asked to insure the accuracy of another even though each question adds to the length of the questionnaire.

Every questionnaire should be as brief as is possible to gain the essential information. Nothing is more formidable looking to an overworked person than a long list of interrogations, which suggest individual investigation.

SALESMANSHIP OF THE QUESTIONNAIRE

Salesmanship in the Covering Letter

The letter accompanying the questionnaire is an important element in the strategy used by the investigator to get answers. The letter is designed to interest the recipient in furnishing the desired information. It attempts interest by explaining why the particular person is approached for information, what the reasons are for wishing to get the information, and by making the reader feel that he is being taken into the confidence of the investigator. The receiver of the questionnaire can sometimes be induced to fill it out by being promised a digest of findings, freedom from salesman's calls, or absolute secrecy in regard to the information given and the name of the person giving information. The letter must be sincere, original, courteous, free from flippancy, and adapted in language to the type of information asked for. An authority must not be made to feel that he is just one of many. For example, the following letter makes a definite appeal in a persuasive manner to the recipient to fill out the questionnaire. It is noticeable for its directness of appeal, its frankness, and for the meagerness of the information which it requests.

The purpose of the letter is made clear in a confidential tone, and the form of the questions is so arranged that it serves as a guide in answering. The benefit to the reader is made apparent, plus a certain appeal to pride through mention of the exclusiveness of the mailing list. The letter is not too long, and, by suggestion, tells when to return the answer. Since the reader may

feel that he will be asked for money later, the signing of his name is made optional, although the letter was keyed.

Dear Sir,

Frankly, we're writing to you as one of the most representative ——— producers in Ohio to ask your opinion concerning a national advertising campaign about which your ——— association has requested information.

As you know, the ——— industry has never taken any steps toward increasing the demand for ———. Of course, individual producers could not afford to advertise.

However, your association, having seen what organizations such as the florists have done by uniting and advertising, have asked us to make a survey of the situation and make a report of the advisability of national advertising.

If the paper industry can increase its business two hundred million dollars in four years by national advertising, and if canned foods can increase the use of products 1000%, the ——— association may be overlooking a gold mine.

Naturally, the experienced opinion of a few of the best producers such as you will mean much in enabling us to submit accurate facts.

This material is entirely confidential—for our use only—and we assure you that you will not obligate yourself in any way by answering the few questions attached. In fact, if you do not care to sign your name, we shall appreciate the information just the same.

The enclosed stamped envelope will insure us getting the material immediately.

Yours truly,

1. Are you in favor of an advertising campaign to increase the demand for you ———?
 Yes No
2. Would it be worth \$2.00 per year for five years?
 Yes No
3. Would you aid a campaign in committee work?
 Yes No
4. Would you lend your moral support?
 Yes No
5. Would you do everything possible to maintain the highest standard of production?
 Yes No

Careful attention to the form of the letter will give it persuasive qualities. The letter must be typewritten or multigraphed according to the exigencies of the case and personally signed. If multigraphed, the name and address should be filled in on the typewriter. The letter should be written upon a good grade of paper free from ornamentation in the letterhead. The letter should be set up in such a way that it is easy to read. It should be enclosed with a self-addressed and stamped envelope, and special delivery stamps should be used in cases when the time element justifies the expense. The color of the paper used has been found to increase the number of replies. The Division of Crop and Live Stock Estimates of the Department of Agriculture which mails inquiries every two weeks to 110,000 farmers found that light yellow paper drew the greatest number of answers. Incidentally, they also found that a questionnaire containing only six or seven questions drew the greatest number of answers. Pink paper also brings good returns from a farm market. The dark colors, especially dark blue cut down the percentage of replies. The question should be placed first that is likely to arouse interest. Particularly is it important to watch the first questions in mailed questionnaires. Personal questions are less likely to be answered if near the end. Questions should also be arranged for convenience in analyzing.

A questionnaire should be acknowledged in cases when it is advisable to maintain the interest of the recipient in order to ask information of him at a subsequent time. If one is deemed advisable, the requirements of the particular case will dictate its character. The form of the acknowledgment may be a personally dictated letter or a draft of the findings.

Persuasion in the Questionnaire

To persuade people to fill out questionnaires, they must be constructed with careful regard for the time and effort of the people to whom they are sent. More questionnaires will be answered if the mere detail of writing down answers is minimized.

For example, those asked to fill out the consumer survey for Pork and Beans are merely asked to mark the appropriate blanks with X which makes the work of answering eight questions consume only two or three minutes.

Pork and Beans¹

1. Question: What are your favorite brands of PORK AND BEANS?

Answer: (Mark x below)

1 A & P	7 Libby	13
2 Bean Hole	8 Monarch	14
3 Beechnut	9 Snider	15
4 Campbell's	10 Van Camp	16
5 Coun'y Club	11 Veri Best	
6 Heinz	12	

2. Question. How often do you serve PORK AND BEANS?

Answer:

3. Question: What part of year do you prefer them? (Mark x below)

Answer: Winter Summer All Year

4. Who likes them most? (Mark x below)

Answer. Father..... Mother..... Brother..... Sister.....
All of family.....

5. Question: Do you like KETCHUP on them? (Mark x below)

Answer: Yes..... No.....

6. Question: Have you tried BEAN HOLE Beans? (Mark x below)

Answer: Yes..... No.....

7. Question: Do you like them? (Mark x below)

Answer: Yes..... No.....

8. Question: Do you bake your own beans? (Mark x below)

Answer: Yes..... No.....

People will fill out questionnaires if they do not need to look up information.

On the other hand, such questions as the following, of which there were ten directed to a college executive, would require an investigation on his own part if his answers were to be authoritative:

1. What kind of business organization do students most prefer to join—the headquarters force of a large national organization; the branch organization of a large national organization; the small organization—and what is the preference in regard to the large city versus the small city?

2. Are there indications that an increasing number of students aim to get into business research activities of business organizations, or do they prefer to get into a line position?

3. What additional training do you think a company should offer and what form should that training take; for instance, individual coaching, formal instructions, or otherwise.

¹ Questionnaire prepared by the General Outdoor Advertising Co.

Many questionnaires are unnecessarily difficult to fill out simply because they are longer than need be. For example, a questionnaire in a consumer survey was difficult to fill out because it contained twenty-four questions, each of which had several parts. Illustrations of the type of questions follow:

1. How many times have you bought Blank Hosiery? Kinds each time?
2. How long ago?

First order	Kinds:	Women's
	Men's	Children's
Last order	Kinds:	Women's
	Men's	Children's

One would consume a half hour, at least, in filling out this questionnaire. The less amount of thought and writing there is involved in answering, the more questionnaires will be answered, and the sooner will they be answered. Writing can be minimized through proper wording of the questions and through a short questionnaire. It takes less time to write "yes" or "no" to a series of questions than to express an opinion. Unless questions require material to be looked up it takes less time to fill out a short questionnaire than a long one, and the returns will be easier to tabulate during the formulation of results. At the same time, the person who frames a question for the "yes" and "no" answer, will need to give more thought to its framing than to one that calls for an expression of opinion.

In checking over the factors conditioning the success of a questionnaire, one has to consider:

1. Kind and number of questions asked.
2. Reasons given for asking them.
3. Inducement for answers.
4. Color of paper used.
5. Interest of the people to whom they are mailed.
6. Timeliness in receiving the questionnaire.

As specified aids to secure results the following suggestions are given in tabular form:

1. Enclose a stamped envelope.
2. In certain cases employ a telegram or send under a special delivery stamp.

3. Promise to send digest of results.
4. Promise that no salesman will follow up.
5. Promise not to quote names or information without permission.
6. Select persons as recipients of the questionnaire who have a natural interest in the subject of the investigation.
7. Phrase questions to arouse interest and to reveal sincerity.
8. Adapt the language of the questionnaire, as well as the information asked for, to the recipient of the questionnaire.
9. Arrange questions to give them the sequence of dialogues.
10. Set time limit on return of the questionnaire, usually by suggestion.
11. Adapt the quality of the questionnaire to the reader.
12. Keep the number of questions down to ten.
13. Send more than one questionnaire if more than ten questions are needed.

As a final word concerning how to put salesmanship in a questionnaire is the dictum of an experienced director of research: "Questionnaires always brought good results if constructed with careful regard for the time and effort of the persons asked to fill them out and especially if the recipients felt they were conferring a benefit upon mankind, not merely helping the author. To use an inquiry upon merely personal grounds is unsound."

PHRASING THE QUESTIONS

To eliminate ambiguous answers to questions, the investigator will make his questions simple and direct, qualities exemplified in such questions as:

1. What influenced you to buy?
2. Were you influenced by advertising?

The easier the questions are to answer, the more accurate and valuable the answers will be. If a question is so complex as to require definition and qualifying phrases, it needs to be rewritten. For example, the following question. "Would the fact that these raincoats are cravanette processed (which means better appearance and longer wear) be an inducement in buying?" through its qualifying phrase influences the answer. Questions

should be so phrased that they are capable of but one interpretation which is another way of saying that the question should be crystal clear. For example, a questionnaire calling for the experience of an automobile owner in reference to the durability of a car should specify whether he wants the answer in terms of mileage or in terms of the years that the car has been run.

A question that is ambiguous is also one to which the answers are hard to tabulate. Checking the questionnaire against the recapitulation sheet will often indicate ambiguity and will enable correction before the questionnaire is mailed.

As just suggested, questions should be phrased for convenience in analyzing. As an example of the difficulty of so phrasing a question that it will bring in answers in the same units, one may mention the experience of the Bureau of Agricultural Economics. The question, "How much land will be fall plowed" seems clear. The answers, however, included:

- A. Percentage of all land plowed.
- B. Percentage of tillable land plowed.
- C. Percentage of fall plowing completed to date.
- D. Percentage that fall plowing constitutes of all plowing.

If the questionnaire had made clear that the unit of measurement to use in the reply was acres, there would not have been, of course, so great a variety of answers. The inclusion of the unit helps to prevent qualifying statements in answers which makes the tabulation more difficult.

As a second example of questions hard to tabulate, one may cite the following question in an investigation, the object of which was to find out what size of package would be the most popular:

- 1. What size package of do you carry?
- 2. What price do you get for this?

A better question would have been.

- 1. What size package is your best seller?
- 2. What price do you charge for:
 - 1. 1 lb. box.
 - 2. $\frac{1}{2}$ lb. box.

For tabulation, the best results are obtained from questionnaires when they are limited to statement of fact, such as "yes" and "no," figures, colors, etc. As soon as questions bring answers of opinion rather than of fact, they are hard to record and to analyze.

Consistency in Point of View

Since the answers sought by questionnaires should give typical fact, opinions, and cases, it is desirable to secure all answers from the same point of view. Repeat in each question the phrase most pertinent to the subject. Do not merely head the questionnaire with its subject and then list a series of questions regarding the main topic, for such a practice impairs accuracy.

Types of Answers

The phrasing of the question will, in every case, be governed by the type of answer desired. Types of answers to the questionnaire are three:

- (a) The categorical type.
- (b) The answers of opinion type.
- (c) The numerical type.

Categorical Answers.—Questionnaires usually seek the "yes" and "no" type of answer or categorical type. To cite an example, the following questions in a Wholesale Grocery Survey were made up of such questions as:

1. Question: Are there any "cash and carry" jobbers? (Mark x below)
Answer: Yes..... No.....
2. Question: Are there any "wagon" jobbers? (Mark x below)
Answer: Yes..... No.....
3. Question: Are there any cooperative jobbers? (Mark x below)
Answer: Yes..... No.....

The advantage of this type is that it is simple to classify and to make inferences from. If there are 454 replies from executives of the better class, middle class, laborers, and housewives who answer a question as to whether or not they use tea and 439 say "Yes" while 15 say "No," it is easy to say what percentage use tea and what percentage do not.

As an example, the following results were formulated in a Report on an Investigation of Green Tea by the General Outdoor Advertising Company:

TABLE I
TABULATION OF CATEGORICAL ANSWERS

	Use Tea	Use Tea Occa- sionally	Do Not Use Tea	Total
Executives or better class.....	48	4	..	52
Light workers or middle class....	158	10	6	174
Heavy workers or laborers.....	77	2	3	82
Housewives.....	133	7	6	146
Total.....	416 or 91.7%	23 or 5%	15 or 3.3%	454

Moreover, the inference is sound that people of all groups use tea. The few that do not are really exceptions and not restricted to any particular group. The investigation is not exhaustive, but the number of "Yesses" give a good picture of the market for tea. Only when specific knowledge is sought is the question capable of being phrased to elicit the "yes" and "no" answer. Incidentally, it may be remarked that postal cards can be used successfully in getting "yes" and "no" answers.

When the "yes" and "no" answer is desired, there must be no possibility of ambiguity or misconstruction. The phrasing of the question must be as simple and direct as that contained in the question, "Have you a radio in your home?" The guiding principle in phrasing these questions is, of course, to seek specific facts instead of general knowledge.

Sometimes questionnaires are meant to elicit tabular replies carefully specified. The question is framed so that all the recipient has to do is to check certain answers. For example, what part of the year do you prefer Pork and Beans. Answer: Winter.....? Summer? All year? is intended to bring replies easily tabulated. If such is the object, as stated, then the more convenient it is for the person questioned to make a check or a mark, the more likely the investigator is to receive the replies.

Categorical answers also have the advantage of bringing specific information. For example, the Department of Labor in obtaining detailed statistics of approximately 12,000 workingmen's families in 92 localities on the quantity of clothing purchased annually did not leave to the imagination of the recipient

of the questionnaire just what he bought. It enumerated specific articles—hats, suits, coats, pants, etc.—as the following table shows:

TABLE II
SPECIFIC INFORMATION OBTAINED FROM CATEGORICAL ANSWERS

Article	Per Cent of all Families Purchasing	Average Number Articles per Family	Average Cost per Article	Average Cost per Person
Hats, felt.....	62.0	1.1	\$ 3.23	\$ 2.26
Hats, straw.....	28.1	1.0	2.52	.74
Caps.....	35.5	1.4	1.11	.56
Suits, wool.....	51.5	1.1	26.54	15.35
Suits, cotton.....	6.2	1.1	12.99	.92
Coats (separate).....	3.3	1.3	4.86	.22
Pants (separate), wool.....	27.9	1.4	5.08	1.97
Pants (separate), cotton..	21.5	1.7	3.06	1.12
Overcoats.....	17.5	1.0	22.38	3.96
Raincoats.....	5.5	1.0	8.57	.47
Sweaters and jerseys.....	20.2	1.1	4.39	.96
Overalls.....	46.5	2.5	2.14	2.46
Jumpers.....	20.1	2.2	1.99	.88
Shirts, cotton.....	89.3	4.0	1.31	4.65
Shirts, wool.....	11.5	1.9	2.85	.61
Shirts, silk.....	3.6	1.4	4.28	.21
Undershirts, cotton.....	31.7	2.6	1.01	.82
Undershirts, wool.....	9.4	2.0	2.25	.43
Drawers, cotton.....	30.3	2.5	1.01	.77
Drawers, wool.....	8.7	2.0	2.22	.39
Union suits, cotton.....	45.0	2.7	1.58	1.91
Union suits, wool.....	10.8	2.1	3.68	.82
Pajamas.....	7.8	1.8	1.65	.23
Nightshirts.....	17.0	1.9	1.27	.41
Socks, cotton.....	94.9	11.1	.28	2.95
Socks, wool.....	16.7	3.5	.76	.45
Socks, silk.....	8.9	3.1	.71	.20
Shoes, high.....	94.8	2.2	5.17	10.70
Shoes, low.....	18.5	1.2	4.41	.96

Incidentally, this table provides an excellent index for estimating markets.

The categorical answer is the most valuable, although, in general, it is hard to obtain. People dislike to commit themselves to anything definite, especially in writing.

Answers of opinion.—When answers of opinion are sought, questions must permit only of certain answers, and the type of answer desired must be designated. The recipient of the questionnaire can only answer “yes” or “no” or choose between such designated answers as “larger,” “equal to,” or “smaller.” If he is not so guided, he will give his own opinion in his own way which way is impossible of classification. Answers to the question, “How is business?” for example, brought back such answers as “rotten,” “good,” “fair,” “poor,” “fairly good,” “as good as can be expected,” “excellent,” “wonderful,” answers which could not be formulated according to any system. It were useless to expect an answer in percentages, for the answers would only be guesses. However, a question such as the following sent to a hundred or thousand dealers would bring back answers which could be classified: Is your business in January, 1929, compared with your business in January, 1928: larger . . . ; equal to . . . ; smaller . . . ?

Numerical Answer.—One ordinary form of questionnaire seeks to get a *numerical answer* perhaps as frequently as it seeks the “yes” and “no” answer. The purpose of the questionnaire, where numerical answers result, is to obtain statistical information from which tabulated results can be made. The problem of securing an answer to the questionnaire is simple provided the recipient of the questionnaire can give the desired facts in the form of figures. The success of this form results from definite records being kept by a company or by the person approached by an investigator. The advantage of the numerical type of answer, like the “yes” and “no” type, is that the answer can be easily formulated.

The disadvantage of seeking numerical answers is that answers are likely to contain a large percentage of error. If a woman is asked whether or not she purchases only one brand of hose, her “yes” or “no” is easily tabulated and likely to be truthful. If after asking her the brands of hosiery she purchases, you ask, “What percentage of the different brands are purchased,” her answer is likely to be guesswork. The basis on which numerical data gathered in this way is taken as authoritative is that the answers of those who guess too much offsets the answers of those who guess too little.

Numerical answers can be made more authoritative if the

obviously impossible ones are eliminated. It is well to reject extremes in answers. There will, of course, always be difficulty in deciding where to draw the line. Although errors are supposed to compensate each other it is better to reject it altogether, if there is any doubt about the result.

TYPICAL ERRORS IN PHRASING

In every investigation, some questions are so formulated that the answers do not bring forth the true facts. The conclusions drawn should not, therefore, serve as a basis for making recommendations. The truthfulness of the response depends upon how the questionnaire is phrased. There are two types of questions, particularly, which bring unsatisfactory answers:

A. Loaded questions.

B. Biased questions.

A "loaded" question is one so worded that it influences the answer. For example, the following question of the Gorton-Pew Fisheries investigation: "Did you *like* the *fish cakes*?" suggests the answer "Yes." On the other hand, the question, "How did the fish cakes taste to you?" is unloaded.

"Biased" questions, the name being taken over from the biased character of the answer, are those which are so personal as to embarrass the person who answers them. Questions pertaining to mental or physical defects of a person, his personal habits, his finances, his religious affiliations, are likely to bring biased answers. Moreover, when social prestige is involved in the purchase of commodities, the chance of bias in determining motives of the purchasing is very great. It has been pointed out that when an investigator wished to find out the buying motives that governed the purchase of a certain type of piano, he did not ask, "Why did you buy the piano?" He asked casual questions, the sum total of which revealed the buying motive. People are not conscious, in general, of why they make purchases, but they will reveal the influences in a great number of instances, if questioned properly. Any question, the answer to which reveals income, may be included in a list of touchy questions. In the case of farmers, the Bureau of Agricultural Economics

would not, therefore, ask anyone to state total production. It would send out a questionnaire on acreage. Later, it would send out a questionnaire on yield per acre. The results of the two questionnaires would furnish the knowledge desired.

If questions are ill adapted to the person receiving them, they are certain to bring untruthful, humorous, or facetious replies.

Mr. Richard B. Franken says that wild answers result from an attempt of the person filling out the questionnaire to be humorous. He mentions that in a consumer investigation, Rolls-Royce was the answer in far too many cases on a question asking the kind of car which the husband drove and that people will even say that they eat ice cream regularly for breakfast, if asked the question.

To check the phrasing of questions in a questionnaire, the following table of "don'ts" in phrasing questionnaires will be helpful.

A. Don't put two thoughts in the same question as does the following question: Do you sell more than one brand of refrigerator? Why or why not?

B. Don't ask an ambiguous question such as, "How much were the crops damaged by the early frost?"

C. Don't ask a question that calls for general information such as, What do you think of the future of business?

D. Don't load a question such as, Don't you think stocks a better investment than bonds? Do you know what stocks rate in the A class?

E. Don't ask questions that will bring, "I don't know"; i.e., At what age does one begin to eat less candy than formerly?

F. Don't ask questions that pertain to the mental or physical defects of a person, his personal habits, his finances, his religious affiliations, etc.

G. Don't seek "over-shrewd phrasing" of questions to get at confidential facts.

H. Don't ask questions some one term of which isn't clear. What are your "real wages"? (Meaning salary in terms of purchasing power.)

I. Don't ask involved questions. "To what church do you belong or do you have any religion?"

J. Don't ask negative questions, "You do not like green tea, do you?"

K. Don't lengthen the questionnaire by too many check questions. "What is your attitude toward house-to-house selling? Have you ever bought Super Maid Aluminum?"

MECHANICS OF THE QUESTIONNAIRE

A questionnaire of one page brings better results than that of two pages, and the postal card is used with good results. If two or more pages are sent, they must be securely fastened together by a small fastener or staple. Otherwise Mr. Brown's first page may be attached to Mr. Jones' second page. Questionnaires should be in different colors when an investigation is being conducted on two products, one among consumers and one among dealers. Returns are increased by enough room being left for the requested information to be written out. An investigator cannot be too careful concerning the mechanical form in a questionnaire, and the detail of handling the questionnaire. Details might well be checked against such a sheet as the following:

1. Enter beforehand all facts regarding the source of the information in the reply to a questionnaire submitted to a particular person, or to a particular firm.
2. Insert as many details required for identification beforehand as is possible.
3. Use 8½ x 11 paper of good quality for convenience in filing and binding in the finished report. Some paper will not "take" ink.
4. Use printed questionnaires if at all possible.
5. See that the questionnaire isn't bulky.
6. Distinguish different classes of people approached by different colors of paper.
7. Identify different territories by a system of numbering. 100-A, 100-B, etc.
8. Number each question.
9. Double space the questions to have plenty of room for answers.
10. Combine related questions.
11. Arrange questions in order of their interest to the reader
12. When totals for various items are needed, items should

be arranged in a column so as to make checking or adding of totals easier.

13. In multigraphed questionnaires, the name and address of the recipient should be filled in on the typewriter.

DETERMINING THE NUMBER OF QUESTIONNAIRES

Determining the number of questionnaires necessary to obtain a desired number of replies depends, as was suggested in planning the procedure of the investigation, both upon the nature of the problem and the cost. Experience in these matters is always the best guide. Lacking this, two basic principles must govern each case. Questionnaires are seeking a sufficient sample and a representative sample. Getting a sufficient sample depends on numbers of questionnaires mailed out. The number to be sent out must depend upon the extent of the area to be covered and on the accuracy of the data expected. For example, the bureau of market analysis of one publishing company sends not less than 10,000 for standard investigation among subscribers to its publications, and the number usually totals from 30,000 to 50,000. For special investigations for advertisers, it sends out not less than 1,000.

The idea is generally held by inexperienced investigators that the number of returns will be greater from questionnaires sent to the higher income classes. Sufficient tests of the case have been made to show that the percentage of replies may be as great from the laboring classes as from the quality classes. The quality of the answer will, however, be better from the higher classes.

TESTING QUESTIONNAIRES

It is advisable, when questionnaires have been formulated according to standard requirements, to test them out by distributing them over the same area and on the same basis as the final questionnaire will be distributed, or over a small area in a concentrated manner. In each case, the individual investigation will be the basis of the decision for the method to be used. The number of questions must depend upon the size of the investigation, homogeneity of the data, and the territory to be covered.

The office method is another method of testing out questionnaires. The questionnaire is submitted to a group of executives

or a group of employees in the company doing the research. The reason for the office test is to determine if all questions are clear to people who have never seen the questionnaire before and to learn if other questions might not bring pertinent answers.

Trial questionnaires are not employed when the number of questionnaires to be mailed out are so small that it is just as expedient to make a new complete investigation, if necessary, as to send out the trial questionnaire; when questions asked are so simple that there can be no doubt as to the correctness of the answers; or when experience has already demonstrated that a certain type of question will bring a certain type of answer.

To gain the full value from the use of the trial questionnaire, all returns must be carefully tabulated and studied to determine any difficulties which may arise in the final questionnaire. If the returns are satisfactory, they are used as a part of the returns from the final investigation, and then the rest of the questionnaire is mailed out. Comparisons will afterward be made between the results of the trial and of the final questionnaire.

PREPARING THE MAILING LIST

Recalling the fact that one purpose of the questionnaire is to obtain a sufficient number of accurate answers from individuals of a group to be representative of that group, care must be taken that people to whom the questionnaire is sent is truly representative of the group from whom answers are desired. A good chair may make a poor couch. For the same reason, a good questionnaire may be rendered worthless by being sent to the wrong person. The very success or failure of the questionnaire depends upon the selection of typical people. To get a list of representative people the Meredith Publishing Company uses the following plan:

“For standard investigations of subscribers to Meredith publications, the number of subscribers will be divided by the number of questionnaires to be sent out in order to determine the “selective factor.” If the “selective factor” is 10, it means that a questionnaire will be sent to every tenth name on the subscription list. Since names are filed alphabetically by towns, and the towns filed according to post-office mail routes, the result will be a true cross-section of area and population of town.”²

² Manual of Research of the Meredith Publishing Company.

As in sending out sales letters, if one knows who should answer a questionnaire and where he is, the success of the questionnaire is largely assured. The best list obtainable to receive the questionnaire is the cheapest in the end. It is like planting seed in fertile soil. Rich ground produces large crops.

SOURCES OF MAILING LISTS

The recognized sources of mailing lists are easily catalogued. Wherever the questionnaire offers a unique problem in compiling the mailing list, only individual ingenuity will solve it. An investigator trying to reach parents of children under one year of age in Chicago was unable to solve the problem of the mailing list when he found that the commissioner of health did not permit birth notices to be printed.

For a list of the competitors of a firm, the commercial register may be consulted. Jobbers are sometimes sources of mailing lists of dealers. Trade associations have reliable mailing lists and will give them out under some conditions. There is a large enough list of reliable dealers in mailing lists to make the purchase of standardized lists of merchants, bakers, grocers, etc., a simple matter. (See page 127.)

TESTING THE RESULTS OF THE QUESTIONNAIRE

Most investigators consider their task completed when they find upon tabulating the data that the percentage of questionnaires answered was high, and the distribution of replies was good. And as has been pointed out previously, 20 per cent replies are considered satisfactory, 30 per cent to 40 per cent highly satisfactory, and that 50 per cent is so high a return that almost never do general questionnaires reach this percentage.

It is significant that over half the people chosen to give a cross-section of the facts relative to a group are never heard from. It leads one to consider the bearing of this silent half on the results of the investigation. Three important questions present themselves:

1. Who answers the mail questionnaire?
2. Who does not answer the mail questionnaire?
3. How accurate is the information given in answers?

SOURCES OF PURCHASED MAILING LISTS

GENERAL AND SPECIAL LISTS ³

Mailing-list dealers	Labor reports
Brokers	Municipal employees' lists
Addressing companies	Incorporation lists
Individuals	Vital statistics and records, etc.
Letters of inquiry	Organization and Membership Lists
Exchanges with other concerns	Commercial
Miscellaneous sources	Civic
Bankers	Labor
Justices of the peace	Social
Country editors	Technical
Bank cashiers	Professional
Rural free delivery carriers	Fraternal
Local retailers	Religious, from churches, etc.
Directories	Educational, schools and colleges
City	Press Clippings
Telephone	Business changes
Rating books	Removals
Trade	Advertisers
Blue books	New incorporations
City-County Records	Fires
City tax lists	Society notes
County tax lists	Births
Registration lists	Deaths
Income tax lists	Marriages
License and permit lists	Engagements
Building records	General and Miscellaneous
School lists	
Automobile license lists	

SOURCES FOR BUILDING MAILING LISTS

Advertising	Internal Sources
Newspapers	Ledger accounts
Trade journals	Salesmen's reports
Magazines	C. O. D. orders
Customers or Prospects	Delivery men's reports
Request	Sales slips
Reward	Contests
Contest	
Canvassing	
Personal investigation	
Distribution of literature	

³ PICKEN, J. H., "Principles of Selling by Mail," p. 209, A. W. Shaw Company, Chicago, 1928.

Applying these questions to the data secured by a mail questionnaire sent to housewives answering an investigation on soap flakes, 92% were found to be users; 8% non-users. An investigation by means of an interview among women who did not answer the above questionnaire disclosed the fact that 40% were found to be users and 60% non-users. It was also found that those answering gave information that was exceptionally accurate. Only 15% of those giving answers in mail questionnaires differed from those using personal interviews. The relation of this particular incident suggests how the devising of suitable tests for the questionnaire helps to assure the accuracy of the data. If there are distortions, they can be detected by some such system of checking as that outlined. If biased data are used in drawing conclusions, the conclusions cannot but be erroneous. The investigator will then blame his own misuse of the method on the method.

After one studies exactly what happens when a given questionnaire is sent out, the remedies are quite simple. If in checking the data, it becomes apparent that the information comes from a group of people who are prejudiced in favor of the product, "an examination of actual conditions by the method given" may make clear how much certain statements should be discounted. If it is found that the questionnaire did not secure replies from enough non-users, attention has to be given to a "more careful selection of the mailing list, greater emphasis on an appeal inviting suggestions and objections, or an offer of some little reward to those who answer. If it is found that the largest percentage of replies are coming from the low income class, the mail matter has to be given greater refinement, the appeal will have to be changed."

These points are given merely as suggestions. For each particular trouble, there is one specific remedy to be applied. As Mr. William J. Reilly⁴ advises concerning checking the Procter and Gamble investigation outlined above: "The person in possession of the peculiar facts, incident to a particular situation, is in the best position to apply an appropriate corrective" for making the results of the investigation authoritative.

⁴ REILLY, W. J., "Checking Up Data Secured by Mail Questionnaires," *Printers' Ink*, Dec. 23, 1926.

CHAPTER X

FORMULATION OF DATA

I. Assembling and Recording Data—II. Importance of Assembling and Recording Data—III. When Data Should be Assembled: A. As It Comes In; B. After All Is In—IV. Methods of Assembling and Recording: A. Loose Leaf Notebook; B. Card System; C. Recapitulation Sheet; 1. Editing the Questionnaire; 2. Use of the Recapitulation Sheet; 3. Operation of the Recapitulation Sheet; D. Copies of Circular Letters—V. Requisites of a Good Filing and Entering System—VI. Causes of Error in Assembling Facts: A. Insufficient Data; B. Poor Selection of Sources; C. Poor Technique; D. Incapacity of Investigator—VII. Questions to Ask After Formulating.

"Men give me some credit for genius. All the genius I have lies in this: when I have a subject in hand, I study it profoundly. Day and night it is before me; I explore it in all its bearings. My mind becomes pervaded with it. Then the effort which I make is what the people are pleased to call the fruits of genius. It is the fruit of labor and thought."—ALEXANDER HAMILTON.

ASSEMBLING AND RECORDING DATA

After securing data by means of the questionnaire, interview, or research, the investigator finds himself confronted with a mass of fact or opinion which must be sifted and classified before it gains even a semblance of usefulness. But to prevent that statement from disparaging the collection of all the possible relevant data, let us hasten to say that no research of any value was ever conducted in which there was not much more material collected than was used in the final report. Just as Webster's reply to Hayne came from a mind so well stocked with material that there was much in reserve, so the best report is prepared from a larger mass of material than is used, clearly implying the breadth of the research.

Faced with this mass of material, either complete or as it begins to accumulate, the investigator must bring order out of

chaos by as good a system of assembling and recording as he can devise. Asking himself, "What am I striving to do?", he reviews his preliminary analysis and working plan.

Classification of the issues that serve as a basis for forming judgments should be revised if necessary before attempting to record data. A careful analysis, classifying like things and elements and showing definite limitations of the research, keeps the problem specifically before the worker, makes the essential elements as well as unexpected possibilities easier to grasp, and furnishes a standard for comparison as well as for more accurate recording.

The specific analysis of issues and definition of terms possible at this time, after having worked this long with the problem, should closely approach the accuracy of the final interpretation. Naturally the tentative outline that has been followed through the collection of data will probably now be subject to some revision. For example, an investigation that proposed to cover all types of magazine subscribers might produce such meager returns in some classes that it will be apparent that no accurate conclusions can be made. Consequently the outline will be changed to eliminate the weak classes and the data filed accordingly.

Assembling data consists of bringing compactly together the data secured, whether they be letters, questionnaires, or the results of field work, and arranging them in organized manner so that they may be analyzed and interpreted with the greatest accuracy and economy of time.

IMPORTANCE OF ASSEMBLING AND RECORDING DATA

Preparing a report is like building a house—each part and supporting element must be in its proper place if the final structure is to be basically sound. Care in assembling and classifying data determines the soundness of their later interpretation. It helps distinguish between the important and the less important.

Assembling and recording is an admirable check on data and on the tentative outline. If the data being filed overlap or will not fit under the divisions provided, a revision of the outline may

be necessary or the data collected may not have a direct bearing on the problem.

Recording the data may prove of utmost importance by showing in a survey undertaken for a specific purpose that this purpose is really secondary to something else that the management had not anticipated. For example, in a survey intended to ascertain whether the style of an article affected its desirability, the mass of material that accumulated in the recording process under the general head of "salesman" soon indicated to the management that the proper subject to make to determine the reason for falling sales was the habits, practices, etc., of the salesmen rather than the style qualities of the product.

The importance of assembling data is to aid the process of "finding out what has been found out," by an organized system of arrangement, before any attempt at interpretation is made. To arrange data in logical order means less confusion in the thinking processes involved.

The recording and later tabulation of data provide the necessary basis for the subsequent step of analyzing and interpreting; hence, it is important to discover the best way of setting up the data. Systematic arrangement of facts greatly helps their speedy comprehension.

Assembling and recording data in one place under proper heads are as important to the report writer as for a large corporation to have a statistical department where records of all divisions are kept. In the corporation, it enables the executives or department heads to study the relations of departments by having various data before them in organized form. For example, a shop foreman was ordered to cut out 50 per cent of his machines. When the electric report of his department was received, it showed a peak load at certain hours. Investigation showed that the shop foreman was using all machines at times. In the same way, recording of material enables the report writer to make comparisons between units and divisions so that interpretation later becomes a much more accurate and quicker task. It will also aid in keeping the writer from attempting to compare things based on unlike terms. Tons, rivets, and man power must be reduced to a common denominator, as will be quickly seen when the data cannot be recorded under a general head.

After the data have been recorded in the best form available

at this time, results should be checked with the revised outline and gaps determined. It will usually be found that certain heads, sometimes main heads, will be conspicuous by a lack of data concerning them. If after consideration it is decided that data under these heads are necessary to the final solution of the problem, the worker will immediately set about to get the necessary data before proceeding to the next important step of interpreting these data which he has collected and recorded.

WHEN DATA SHOULD BE ASSEMBLED

As It Comes In

In a research problem that demands much detailed information coming in over a considerable period of time, the data should be assembled, at least to a certain extent, as they come in. In some cases, it may be necessary to file under a very tentative system, but anything that attempts to bring order out of a mass of material is well worth while, even though it must be reworked considerably later.

Specific facts such as those gathered from the library or from authorities may be assembled in the data file as soon as secured. However, questionnaires, from which facts will be deduced after consideration of a large number, will be filed in some usual manner such as geographical or class of prospect, unless the results are taken off on a recapitulation sheet as the questionnaires arrive.

Usually certain changes in the filing outline will manifest themselves at the outset, thus permitting a reorganization before much material is in and thereby saving much time that would be lost if the investigator waited until all material was at hand before attempting to assemble and classify.

Most data accumulate slowly, whether it be from questionnaires, research in the library, or interviews. Constant sorting and filing familiarizes the worker with the problem and opens up many leads. It will point to the place where the data are lacking, and the mere handling of the material will cause the investigator to think, analyze, and apply checks that will keep down error and save time which otherwise might be wasted collecting superfluous material or neglecting data needed to fill weak spots.

After All Is In

Naturally, after all the data are assembled, a complete check will amount to a reassembling. Files composed of data secured first hand, reprinted material,—in fact, data collected in every manner both general and specific, and oftentimes filed in the heat of the investigation—present the necessity for rearrangement both as to quality and quantity.

Checking the accuracy or value of much of the material may show the way for a different classification, or it may cause a complete change in the tentative outline before final filing. Reprinted material several times removed from its source may be found upon checking to differ materially from the original. Statements on questionnaires may cause serious doubt to arise in the mind of the investigator as to their authenticity or value.

In making this final classification before interpreting, the worker should always keep definitely in mind the nature of his commission, with particular emphasis on the purpose and scope, "For what specific reason am I handling these data?"

Any gaps in evidence will appear in this final check and can be supplemented before the writer seeks to interpret his data for presentation. For the sake of convenience, many data will probably lend themselves to tabulation which will simplify the assembling and will enable one better to compare facts.

METHODS OF ASSEMBLING AND RECORDING

Methods of classifying data necessarily vary with the nature of the problem. The general rule is to prepare data in homogeneous units for filing in the most compact and accessible form suitable to the nature of the work. The card catalogue system is usually the easiest to handle from all angles, although sometimes the nature of the material is such that large sized paper, as $8\frac{1}{2} \times 11$, is necessary to set out the facts clearly. In such a case, it may be filed in large envelopes or by means of regulation dividers properly tabulated.

In other cases, it is inconvenient to handle cards while securing the data, in which case a loose leaf note book may prove the more desirable. Usually the smaller units will provide more flexibility in filing. The results of many questionnaires will be tabulated and condensed on a recapitulation sheet before filing,

which will permit the different parts to be taken off as units and assembled in their proper sequence.

Data may be collected in all forms, such as cards, rough notes, letters, charts, reprints, etc. As soon as it is apparent what form will predominate, a filing system should be selected that will be the most suitable.

Regardless of form, it is sometimes desirable to classify data under such heads as sources, methods of securing, type of information secured, interviews, questionnaires, etc. Keyed questionnaires may need to be filed together, subdivided with proper guides until the information can be digested. A market survey may make necessary a geographical division, possibly arranged alphabetically.

Loose Leaf Notebook

The advantage of classifying material under topics in a loose leaf note book is largely one of compactness and availability. The size of the note book will depend on the nature of data being collected. The smaller sizes, particularly the ones that will slip into a pocket, are preferred when possible. They are not always adaptable to the type of material being collected with the result that the data are crowded on the page, sometimes being incomprehensible even to the investigator himself when he studies them later, and consequently makes for inaccuracy.

The loose leaf feature permits shifting of pages when necessary for re-classification. Tabulators may be easily attached to the dividing pages so that the user may turn to the proper section with a minimum waste of time.

This type of classification is satisfactory when there are considerable notes or data under each head, or when many notes have to be taken with no time for organization. The danger, of course, is in combining too many data on each page and in attempting to file them under one head when they should really be under two or more. In this case the data should be taken off the large sheet and placed on individual filing units. Another difficulty is in having pages tear out after considerable handling, unless the user protects the perforations with reinforcers.

When the data become voluminous, a note book soon becomes unwieldy, unless the material is taken out and filed at intervals.

If there is not much information on each sheet, it means much waste of space and bulky files.

Card System

Classifying data by means of a card catalogue system is perhaps the most popular and usable, especially when the data are secured in small units. In library research or in reading, where many points come close together, the card system permits taking notes with more rapidity than larger sheets of paper.

A 4 x 6 card size is usually considered standard, although larger sizes are sometimes more applicable. The smaller 3 x 5 size is all right when the units of data are very small. For ordinary longhand notes, charts, etc., this size is too small and results in wasted efforts or inaccuracies.

Formulating data that are on cards will be vastly easier if only one idea or fact is put on a card. This sometimes looks like a waste of space, but almost invariably when two pieces of data are put on one card, it will be found later that they belong in different sections, and the worker must stop filing and rewrite part on another card.

Dividers or indicators should be prepared for the card file in as much detail as possible. But even though the outline is not complete when the filing begins, the card system lends itself to rearrangement and additions. This is also true when it is time to write. The cards under any one head may be shuffled and reshuffled at will until they are in an order that permits the writer to go straight through them with a minimum of overlooked material, rearrangement, and rewriting.

When it is necessary to have larger sheets for certain data such as charts, graphs, reprints, etc., although the rest of the material fits into the card system, a card may be inserted in the proper place with a notation calling attention to the larger material. In this way, the writer will know what is available under this head, and it will keep him from the slow and laborious process of constantly thumbing through the bulky supplementary material to be sure that he is missing nothing.

In the original preparation of the card, the head under which the data fall should be written at the upper left-hand corner, with the source at the upper right-hand corner. The first will enable immediate filing, and the latter will provide the bibliog-

raphy and specific data for footnotes. For example, if the source is a magazine article, the card should read something like this:

Letter of Transmittal-content Jones, A. R., "Our Reports"

Ptr. Ink W, 79: 16-18, Dec. 14, '26

Thus, if the writer should question the accuracy of his notes or decide they are too meager, he can easily find the reference and reread.

Before he can mark each card for a subdivision under each main head, the investigator must be very familiar with his working outline, or keep it in front of him.

When data are secured by means of interviews, the data may be put on cards ready for filing if there is no regular form provided.

Recapitulation Sheet

Editing the Questionnaire.—In an investigation of a broad nature, questionnaires are carefully edited before they are recorded, especially when mechanical tabulation, such as the Hollerith machine, is used. In this case, the editing is done by an experienced investigator familiar with the subject, while the actual recording or punching of cards is done by operators.

Editing of the questionnaires is done to insure accuracy, consistency, and completeness, but certainly with no intention of changing the original answers. Corrections should be made in red ink. The editor must determine to what extent he is justified in revising an answer according to other evidence in the questionnaire, in filling in obvious answers, or rejecting doubtful ones. Another duty of the editor is to group answers to questions calling for opinions rather than definite answers, and to evaluate supplementary comments added to the questionnaire.

When using machine tabulation, answers are given code numbers which the editor must prepare. Detailed discussion of mechanical tabulation methods, such as punching, coding, identifying, verifying, sorting, counting, etc., will not be given here.

Instead of percentage and averages, actual data should be shown when the numbers are small.

Before editing questionnaires, a system must be determined for recording unanswered questions on the recapitulation sheet. For instance, in "yes" and "no" answers to "Do you own a

radio?" a blank could well be recorded as "no" since it is a present situation that could be answered. However, for the future question, "Do you expect to buy a radio within the next year?" a blank would indicate uncertainty and would be recorded as "not answered."

Percentages may be based on the number of questionnaires returned, upon those answered partially or completely. The number of those who specified a certain brand of flour may be used as a basis for the percentage of those who gave reasons rather than the total number returning questionnaires.

The basis for calculation of averages must be consistent with percentages. If a space left blank may be interpreted as "none," the average is based on total returns, but when a blank can be given no meaning, as in "How many acres in your farm?" the average may be based on those answered.

The nature of the question—whether a definite answer can reasonably be expected, as present or future information, or an interpretation implied—and the product will guide the editor in devising his system for recording.

Formulation of the data from questionnaires should often contain an explanation of the mailing list, how obtained, number mailed and returned, and a summary of the quantity of returns.

If the tabulation of material is done by someone other than the investigator, a study should be made of all unfamiliar aspects of the subject.

Use of the Recapitulation Sheet

Much recording of data is accomplished by means of tabulation, especially in the case of numerical and categorical answers on questionnaires. Tabulated data must be arranged in a manner to permit a variety of groupings and regroupings in order to bring out the different relationships between the data themselves and in comparison with other facts. Tabular form is an aid to systematic arrangement of facts and is chiefly used in the nature of a recapitulation sheet.

The recapitulation sheet is merely a ruled sheet with space for each question or basic idea running through a series of answers, and with spaces for each answer. In this way the worker can condense and get before him on one sheet the result

of much research work—questionnaires, interviews, or general data with certain underlying trends.

This enables him to make comparisons and get percentages along side each other which means a quicker and more accurate grasp of facts.

Difficulty is sometimes encountered in preparing the recapitulation sheet because the questions asked were not constructed in such a way as to make them feasible for such a definite and condensed style. Hence, it is often desirable to prepare the recapitulation sheet at the same time that the questionnaire is prepared, and in this way each will serve as a check on the other.

For example, a weakness in a questionnaire is disclosed by means of the recapitulation sheet when the answers are recorded to the question, "Do you buy all the shirts for the men, children, in the family?" The impossibility of recording the resulting mixture of "yes" and "no" immediately suggests an error in the phraseology, and if the recording is being done as the data arrive from interviewers it may be possible to order the question changed and still get enough answers to justify accurate conclusions.

If the recapitulation sheet is made up before the investigation and a few test questionnaires prepared and entered, much time and money may be saved by sending out questionnaires correctly phrased.

The recapitulation sheet is purely a work sheet on which the result of the research begins to take its first organized form, and from which many deductions may be made for later use in writing the report. This work sheet is usually rough in appearance, entries being made in pencil as a matter of speed, and to enable easy correction of errors in calculations.

Reducing data to work sheet form is partially a matter of editing it which means that much of the material is subjected to its first check during the process of taking it off the original notes and reducing to a common denominator as is necessary for the sake of comparison. Statements, questions, or figures, that look wrong when placed in line with others may be re-investigated and checked. Answers and figures which commonly would be readily accepted when read alone may become conspicuous and questionable when placed with others.

The findings as shown by any section of the recapitulation

sheet may be taken out and checked with any known findings on the subject or section, thus tending to affirm or disprove other parts.

When there is much variation in replies, or when the percentage is based on different bases, they will have to be entered on the recapitulation sheet in terms of a common denominator before logical comparisons may be made.

The recapitulation sheet takes the form of a collection of units, when the answers to different questions and sections are placed on it. Therefore, it is a simple matter when writing the report to take off a complete unit and incorporate in the body of the report when such a chart is needed for reference or emphasis.

The size of the recapitulation sheet will necessarily vary with the amount of data to be formulated on it. As in compiling election returns, the precinct can be put on a small sheet, while the state or national returns will demand a master card as large as a table top.

Operation of the Recapitulation Sheet.—A survey for John Doe gloves¹ took the interviewer among three classes of people in different cities. Two questionnaires—one for purchasers and one for non-purchasers—were used in each of the three districts. The following questionnaire was used for non-purchasers:

Questionnaire

Non-Purchasers of John Doe Gloves

1. Do you know of the John Doe brand of gloves?
 - A. How did you first hear of it?
2. Have you ever received their direct mail advertising?
 - A. How often?
 - B. How did it impress you?
 - C. Why did you not buy?
3. What points about the John Doe methods of selling do you like?
4. What points do you dislike?
5. Do you ever buy anything else direct by mail?
6. How do you regard John Doe gloves as to quality?
7. Have you ever heard your friends recommend them?
8. Do you buy gloves for the men of your family?
9. What magazines do you read regularly?

¹ Names and figures changed.

The result of each of the six classifications in each city was reduced to a separate recapitulation sheet. The results of these recapitulation sheets were then condensed on a master sheet covering the entire investigation, after which the data were ready

RECAPITULATION SHEET ILLUSTRATING CATEGORICAL

Non-Purchasers Inter- viewed	1 Knowl- edge of Gloves	1A Source of Knowledge	2 Received Direct Mail	2A How Often?	2B Impres- sion	2c Why Didn't You Buy?
Class III						
1	Yes	Store	Yes	Yearly	Good	Prefer store
2	Yes	Friends	No	.....	.....	.....
3	Yes	Friends	No	.....	.....	.....
4	Yes	Advert.	Yes	2 yearly	Good	Other brands
5	Yes	Friends	No	.....	.....	Disliked
6	Yes	Direct mail	Yes	1 or 2 yearly	Good	Prefer store
7	Yes	Direct mail	Yes	1 or 2 yearly	Good	Sister disliked
8	No	.....	No	.....	.....	.....
9	Yes	Direct mail	Yes	Yearly	Good	Method
10	No	.....	No	.....	.....	.....
11	Yes	Direct mail	Yes	Yearly	Good	Method
12	Yes	Friends	Yes	Yearly	Good	Inconvenient
13	Yes	Direct mail	Yes	Recently	Good	Skeptical
14	Yes	Direct mail	Yes	Recently	Good	Prefer store
15	Yes	Direct mail	Yes	Yearly	Good	Inopportune
16	Yes	Direct mail	Yes	Recently	Good	Had gloves
17	No	.....	No	.....	.....	.....
18	No	.....	No	.....	.....	Other brands
19	No	Friends	Yes	Recently	Bad	Motherdisliked
20	Yes	Advert.	Yes	1 or 2 yearly	Good	Method
21	Yes	Direct mail	Yes	Yearly	Good	Had gloves
22	No	.....	No	.....	.....	Prefer store
23	No	.....	No	.....	.....	Other brand
24	No	.....	No	.....	.....	Prefer store
25	No	.....	Yes	Recently	Good	Method
26	Yes	Friends	Yes	2 or 3 yearly	Bad	Had gloves
27	No	.....	No	.....	.....	.....
28	Yes	Direct mail	Yes	Recently	Good	Prefer store
29	Yes	Direct mail	Yes	Recently	Good	Prefer store
30	Yes	Direct mail	Yes	Yearly	?	Had gloves
31	Yes	Direct mail	Yes	Not lately	Good	Price
	Yes 21 No 10	Dir. mail 13 Advert. 2 Friends 6 Miscl. 1	Yes 20 No 11	Yearly 12 Recently 7 Not lately 1	Good 17 Bad 2 ? 1	Prefer store 7 Other brand 3 Disliked 4 Method 4 Had gloves 4 Miscl. 3
	— 31	— 22	— 31	— 20	— 20	— 25

to be analyzed and interpreted. The illustration below shows the recapitulation sheet for Class III non-purchasers in one city.

ANSWERS AND ANSWERS OF OPINION

3	4	5	6	7	8	9
Good Points	Bad Points	Buy Other Things?	Quality of John Doe	Friends Recommend	Buy for Men	Magazines Read
Convenient	Method	No	?	No	No	None
.....	.....	Yes	Good	Yes	Yes	Pict., W.H.C.
.....	Method	No	?	No	Yes	Pict., W.H.C., Amer.
None	Method	No	?	Yes	Yes	None
.....	Method	No	Cheap	No	Yes	Amer., Cos.
.....	Bothered	No	?	No	No	Amer.
.....	Method	No	Good	Yes	Yes	Col., G.Hk., Post
.....	Method	No	?	No	Yes	None
.....	Method	No	?	No	Yes	McC., W.W.
.....	Method	No	?	No	Yes	None
.....	Method	No	Good	Yes	Yes	L.H.J., G.Hk., W.H.C., Col.
.....	Inconvenient	Yes	Good	Yes	No	None
?	Adjustments	No	Good	Yes	Yes	Pict., McC.
None	Method	Yes	Good	Yes	Yes	None
?	Method	Yes	?	No	Yes	W.H.C.
Convenient	Method	Yes	.....	No	Yes	None
.....	.....	No	?	No	Yes	None
.....	Neutral	Yes	Good	.....	Yes	McC., Amer., G.Hk.
None	Neutral	No	Bad	No	Yes	Amer., Col., G.Hk., L.H.J.
None	Neutral	No	?	No	Yes	None
?	?	Yes	Good	Yes	No	None
.....	.....	Yes	?	No	No	W.H.C., McC.
None	.....	No	?	?	No	None
.....	.....	No	?	?	No	None
?	Method	No	?	No	No	W.W., Del., W.H.C.
Convenient	Method	Yes	Good	Yes	Yes	G.Hk., L.H.J.
.....	Method	No	?	No	No	W.H.C., Pict.
?	Method	Yes	?	No	Yes	Cos.
?	Method	Yes	?	No	Yes	W.H.C., Pict.
.....	Skeptical	Yes	?	Ne	Yes	Amer., W.H.C., Col.
None	Method	Yes	?	No	Yes	Col., W.H.C.
Convnt. 3	Method 20	Yes 13	Good 9	Yes 9	Yes 22	None 11 G.Hk. 5
None 6	Adjust. 1	No 18	Bad 2	No 19	No 9	Pict. 5 Del. 1
? 6	Skeptical 1		? 19	? 2		W.H.C. 10 L.H.J. 3
	Neutral 3					Amer. 6 W.W. 2
						Cos. 2 McC. 4
						Col. 5 Post 1
—	—	—	—	—	—	
15	25	31	30	30	31	

The number of questions and the divisions correspond to the questionnaire. Thirty-one people interviewed would not be enough upon which to base decisions, but this is only a fraction of the total investigation.

The illustration shown is not intended to be a model. The need of editing is apparent in question 2A and 2C since there is no interpretation of "yearly" in the former and too many miscellaneous answers are recorded in the latter. As recorded, it is doubtful if the answers to question 2B will render any valuable information because of vagueness. Question 5 serves as a check on some of the other answers because if the prospect buys other things direct-by-mail, the refusal to buy gloves may have more significance.

From this formulation of data on the recapitulation sheet, the investigator will have condensed information that will permit of quick and accurate analysis and interpretation, such as: proportion of John Doe customers (customers vs. non-purchasers) in the different classes, extent of purchases by customers, likelihood of buying again or reasons for not buying, attitude toward direct mail, how customers are getting acquainted with John Doe, result of present advertising, magazines read by different classes, etc.

Later, when writing the report, units of the recapitulation sheet may be used separately to accompany the text and emphasize different points, as: *

TABLE III
TABLE SHOWING FIRST KNOWLEDGE OF JOHN DOE GLOVES BY
NON-PURCHASERS

	Class I	Class II	Class III
Non-purchasers.....	36 (100%)	23 (100%)	31 (100%)
Known through advertising.....	14	.....	2
Known through direct mail.....	9	11	13
Known through friends.....	1	7	6
Uncertain.....	1	2	.....
Having no knowledge.....	11	2	10

* For formulation of data necessary to the preparation of charts, see Chap. XVIII.

Copies of Circular Letters

Copies of all circular letters, and other letters of importance, should be filed with the data. Instructions contained therein will be of aid in arranging the data, and copies of these letters will sometimes be desired for the appendix of the report as exhibits of the method used in collecting.

REQUISITES OF A GOOD FILING AND ENTERING SYSTEM

Two fundamental requirements of a good filing system are simplicity and definiteness. Subdivisions should be kept down to a minimum or the filing system will soon become a problem greater than the one it is helping solve. Involved subdivisions are usually the results of lack of thinking. Every point, which on the face of it seems to be slightly different, is immediately given a separate berth in the file, while a little thought would show that basically it comes under a head already prepared.

Lack of definiteness in phrasing the divisions sometimes results in throwing material together that should be separated or subdivided.

Data filed under a general head "Reasons for not buying" would be probably so varied that they would be useless until subdivided and reclassified. Probably some would belong under sales methods. Specific divisions will save time later when the data are being used.

The larger size data sheets will usually determine the size of filing cabinet to adopt. If considerable data are being collected on $8\frac{1}{2} \times 11$ paper, exclusive of questionnaires, the file will probably have to be that size. If only the questionnaires are that size, however, and the rest of the data are being put on 4×6 cards, the latter should govern inasmuch as the data on the questionnaires can be reduced to the recapitulation sheet and handled directly from that.

A filing cabinet should be used that will not only accommodate the size paper, but it should be adjustable so as to allow for expansion as the mass of data grows.

If specially ruled paper is essential, the size of this should be taken into consideration. It is sometimes desirable to print the headings on data sheets to save time while collecting, make filing quicker, and insure uniformity.

Adequate subdivision in the file is necessary and should be made by means of dividers which can be purchased to fit practically any size cabinet or filing case. These dividers, made of heavy paper, may have ears sticking up above the data cards or be fitted with commercial tabulators which serve the same purpose.

If commercial tabulators are used, they can be secured in colors, thus enabling an easy differentiation between main heads, major and minor subheads. Guides should be designed so as not to cut off the view of others.

Ordinarily these dividers will be prepared to correspond with the working outline, and as data are collected they will be filed in the proper division. In case the outline is revised, the dividers can be changed accordingly. Thus when all general data are collected, the matter of writing the first draft of the report is largely one of assimilating the material under each section, writing it, and going to the next division. Reference cards for book material that the investigator wants to reread before writing may be dropped in the proper sections.

When data are filed alphabetically and in large quantity, each letter should have more than one divider for the sake of ease in handling. E.g., ab-ag. ah-ap; etc. In case of a nation-wide survey, it may be advisable to file some material geographically.

There should be a reason for each classification. Data collected from different perspectives should be grouped accordingly or designated. The system of filing should be easy to follow or much time will be wasted. If the file is to be elaborate, a special study should be made of indexing before its preparation.

CAUSES OF ERROR IN ASSEMBLING FACTS

Insufficient Data

To insure accuracy in the next step of preparing the report, that of interpreting the data assembled, it is necessary that sufficient data be assembled and properly formulated. The result of a so-called investigation was recently published in which isolated bankers in widely scattered territories had been circularized to ascertain their position on a certain question. Obviously interpretation of such meager data cannot give accurate conclusions.

When a point is under investigation that is likely to be seriously questioned, the evidence should be full and complete. In looking over his assembled data, the investigator may well keep this point in mind.

When worms are scarce the hen doesn't stop scratching but scratches all the harder. When the final check up of facts shows insufficient data on certain points, the only thing to do is to check back over the method used in collecting that which is in the files, reexamine the sources in more detail, or seek other sources.

Poor Selection of Sources

In filing data, attention should be given to the sources from which they have been derived. Often times, an investigator will have his material formulated and ready to analyze and draw conclusions only to find that most of his data have been taken from secondary sources, and that they offer a wide range of possibility of error. The data may not be detailed enough; hence, to get more definite information, he will have to go back to the original primary source. Reprinted articles and synopses of studies are frequently open to question and cannot be relied upon without confirmation.

After checking the answers on a number of questionnaires, it may be discovered that they have really been sent to the wrong class of people who have been influenced in their answers by their position, finances, lack of interest, or some other factor.

This last point is of particular importance when the answers seem to confirm the investigator's own opinion. In the first place, he should attack the problem so openmindedly that he had no preconceived opinion. If he did have, it is possible that it influenced the wording of his questions so that the answers will be merely confirmation but of no research value.

An example of impartiality in making an investigation is a broker who had handled bonds for investment for many years. To prove the absolute superiority of the bonds as a form of investment, he decided to make a thorough study of the relative returns of stocks and bonds over a period of the last thirty years. Possibly because he was so sure of the results being favorable to bonds, the human element of partiality in making the investigation did not enter. When the results were interpreted, the con-

clusions were forced upon him that stocks and not bonds had yielded the greater return over the long pull. The result of that investigation was the forming of an investment trust dealing in stocks, an immense business proposition that has affected various financial structures.

Had partiality been shown in this investigation it is quite likely that the same conclusions would not have been reached for several more years. Partiality and poor selection of sources are the causes of much error in assembling facts.

Poor Technique

Hurried and careless filing, general heads that permit too much material to be filed together, and poor or unrevised outlining are the chief causes of poor technique in assembling material.

Advancing to the interpretation stage with a mass of undigested material is usually a sign of poor technique. Concentrated effort to decipher and coordinate material can best be done when the data are being formulated.

In proper outlining, definition of terms is important. Sometimes it is necessary to create new terms. In handling these sometimes unfamiliar terms, they become old to the worker who may forget to define them. Or terms are defined improperly which means that data are filed in such a way as to be difficult to handle when interpreting.

Permitting the files to become crowded with data that are of little or no importance is an indication of a lack of straight thinking and poor technique.

Incapacity of Investigator

Lack of ability to think is the big handicap of most research workers in formulating, sometimes caused by inexperience. Thinking is the result of effort and does not come on magic wings. It is the result of training of the mind and of applied experiences. Hence, a report prepared by a man long in a field is usually of more importance than one prepared by a newcomer in the same field. Knowing what data to accept and what to reject, realizing how data obviously in one division will have an effect on another, seeing new uses for old material, means that

the man doing research must be thoroughly alive all the time and not performing his duties perfunctorily.

Openmindedness is a necessity for the man formulating data. A retail merchant may feel that he knows his trade. And so he does. Better than the manufacturer. That is, he knows the ones that come into his store. But if he would make an open-minded survey of trade conditions, he must define his point of view to include those that do *not* come into his store. Otherwise he will start off with a preconceived theory to be proved or disproved, and his collection and formulating of data will reflect the bias.

Openmindedness is necessary to get the right kind of facts, to get enough of them and not simply a thin story from a few sources, and to get them authoritatively. The investigator who says, "I think the prices are too high for this community. I may be wrong, but I'm openminded so we'll make a survey," is not openminded at all. He is starting with a preconceived theory.

QUESTIONS TO ASK AFTER FORMULATING

After the investigator has formulated the data and before he begins to make the final analysis and interpretation, he may well give a brief retrospective glance over what he has accomplished, as suggested by the following questions:

Are all the terms clear?

Do results indicate that the questions were impartial?

Were they sent to a representative list?

Are there enough data on each point to prove it?

Are the data from correct and authentic sources?

Have I been openminded in selecting them?

Or did I have a definite opinion on this question that I merely set out to prove?

Are the data digested so as to be in usable form?

Have I revised my working outline as necessity indicates?

Is the collection of data within established limitations?

Is it adapted to the needs of the problem and of my readers?

Are the data classified so as to facilitate the work in analysis and interpretation?

Are they all reduced to the proper bases?

CHAPTER XI

INTERPRETING DATA AND DRAWING CONCLUSIONS

I. Object of Interpretation—II. What is Tested—III. Qualifications of the Interpreter—IV. When Data Are Interpreted—V. What Interpreting Means—VI. Initial Methods of Interpreting—VII. Preliminary Steps of Interpreting: A. Definition; B. Classification; C. Comparison—VIII. Processes of Interpretation—IX. Forming Inferences: A. Origin of Suggestion: 1. Make a start, 2. Talk the problem over with some one, 3. Record like ideas as they occur, 4. Take time to relax, 5. Persist in solving the problem—X. Applying Reasoning to Inferences: A. Generalization; B. Analogy; C. Fallacies; D. Hasty Generalization; E. False Analogy—XI. Using References in Testing Conclusions.

"One of the greatest wastes in business today is the accumulation of statistical data which never reaches the executives' desks for decision and action. Another is the compilation of statistical data which reaches executives, but which through lack of proper interpretation and analysis is neither understood nor acted upon.

"Practically every business organization, today, has its own files of statistical data of most vital importance, data which properly segregated, analyzed, interpreted, and acted upon can be made the basis of substantially increased efficiency in nearly all departments. Unfortunately, in too many businesses, the executives are not statisticians, and the statisticians are not business men," writes Emil Hofsoos in his article, *Lo! The Poor Statistic*.¹

In the same tenor an experienced person in market analysis writes: "Making a survey is easy. Determining what you find out is not so easy." Reports fail as frequently from lack of interpretation of data as in the presentation of conclusions and evidence. The reason for this condition is that correct and ade-

¹ "Advertising and Selling," p. 24, December 29, 1926.

quate interpretation is one of the most difficult as well as one of the most important problems facing the investigator. His difficulty lies in discerning the inferences or evidence to which the research data may point. Inference, moreover, is finding an explanation or solution that will conform to the facts observed.

OBJECT OF INTERPRETATION

The object of interpretation is, of course, to “wring from the data” their inherent meaning in solving a problem. Always the past and present is being explained to the end of forecasting the future. To repeat, the purpose of this step is to discover and to apply such effective methods of analyzing the data as will extract meanings from them. While mental acumen of high order may not discover hidden meanings in unanalyzed data, it will discover them if methodical analysis is made of these data. Also methodical analysis will bring out inferences.

Interpretation of evidence has also other objects. It estimates not only relative weights of various items, but also sufficiency of the evidence for a definite purpose. Sometimes, in this weighing, points regarded as unimportant are found to be of fundamental importance.

As soon as one can make the main point in solving a problem stand out clearly, the other material will arrange itself naturally about it. For example, an interpretation of a market analysis concerning fiber soles brought out one fact that stood out above all others—fiber soles were not yet a thoroughly established product, and much educational work remained to be done in the way of acquainting repair men, retailers, and the public with this type of sole. Other facts were ascertained, such as: The public did not know fiber soles because the full-page advertisements had been run during the summer months. A number of names and addresses of repair men had been incorrectly given. The Italian and Syrian names had been incorrectly spelled. Fiber soles could not be secured at many of the shops advertised, and when they were secured they cost 25 to 50 cents more than leather soles because repair men were unfamiliar with the method of sewing them on.

Only by testing each of these facts just enumerated in relation to solving the problem of how more fiber soles could be sold,

was it possible to determine the main fact that both workman and public must have more information about fiber soles.

The results may lead to a re-examination of all the data. Sometimes the securing of further evidence is required. The only way to avoid this necessity of securing further evidence, after the data have been interpreted, is for care and foresight to be exercised when the investigation is being planned.

WHAT IS TESTED

The statements made in interviews, replies to questionnaires, things observed, facts, opinions, etc., from trade journals, booklets, advertising, pamphlets, material from catalogues, directories, news items, abstracts, and tabulations from government reports are analyzed, boiled down, and assimilated. Sometimes, the facts are derived from personal observation, personal interviews, and sometimes from secondary sources of information.

QUALIFICATIONS OF THE INTERPRETER

Interpretation requires both commercial sense and a very substantial acquaintance with actual business practice in the industry or business under examination. It requires judgment and discrimination to ascertain not only what facts to accept and what to reject, but also what facts are related in order to ascribe to each fact its proper degree of importance. In interpreting, the investigator must have vision and perspective. He must keep the broad features of a project in mind. He must have not only versatility and readiness of mind, but also judgment and balance. While the person interpreting data puts into the hands of the executive or manager as much as possible of the evidence that the executive may judge regarding soundness of reasoning employed, the interpreter is expected to present his own conclusions. That is the interpreter's job.

WHEN DATA ARE INTERPRETED

Although interpreting is a clearly recognized step of research procedure and often assigned to the third stage, it should be taking place while the data are being collected. Bringing data

together before the investigation is completed leads to partial interpretation and makes known where further evidence is needed. Interpretation goes hand in hand with the assembling process, it being almost impossible to say when one leaves off, and the other begins. A more deliberate and careful testing takes place while data are being assembled, tabulated, and condensed. As analysis and interpretation go on together, the facts begin to form into certain impressions. Impressions change unconsciously into conclusions which call for recommendations. These conclusions and recommendations are the end in view for the research project.

WHAT INTERPRETING MEANS

Interpretation takes many forms. In one aspect, interpreting is first perceiving units with like characteristics, i.e., definition. It is then seeing the relationships between these units so that they construct themselves into some classification. In another aspect, interpreting is combining these reconstructions into logical relationships, i.e., generalization. The basis for each of these steps is constant manipulation and recasting of data. Constant working with data, which takes the form of arranging and rearranging, causes them to be suggestive of further possible meanings or inferences than have been apparent during the collection of the data.

Although it seems that the arranging and rearranging of data is an objective matter, it gives rise to subjective reactions. By such means, the latent meaning inherent in widely different data comes to the surface, and the inferences are rendered less difficult.

GENERAL METHODS OF INTERPRETING

The discussion of research methods relating to the procedure and interpreting data must, of necessity, be limited to the technique of handling the data, the general nature of the thought processes involved, and the principles applicable to them. The technique of handling data has already been explained in the chapter on the formulation of data.

There is a certain amount of interpreting that accompanies

this technique of handling which will stand some brief explanation.

In formulating data, it is recognized that figures are of little use if they are questionable, which they are if they do not refer to the same units of measurement as time, class, size, etc., or if they are not based on the same values. Hence, care is given to have averages and percentages figured on the correct basis before the summary of results is presented for interpretation. For instance, the recapitulation sheet shows whether the percentage of returns from a questionnaire is based on the number sent out, the number returned, or the number returned that are answered in whole or in part. As discussed under "Editing the Questionnaire," the editor in preparing the sheet will have definite rules for recording questions unanswered, partially answered, etc.

The recapitulation sheet should also present averages consistent with the percentages. For instance, if there is not a large enough percentage of answers which are near enough to the amount of the average that it appears reasonable, the interpreter must needs check back through the recapitulation sheet and determine upon what basis the answers were recorded. An example of the usefulness of checking back over the formulation step, when interpreting, is the automobile specialty company that claimed 70% returns from a certain piece of direct mail. The percentages looked out of line with all past experience, and so before accepting the indicated conclusion, the investigator went back and checked the formulation of data. Here he found that a highly specialized mailing list had been used, that the 70% returns included all inquiries as well as sales, and that there had been a very small mailing.

The value of answers often depends on sex, age, time interval, season, social status, intelligence. Oftentimes, the formulation summary will not show the relation of these different factors, and this is the duty of the interpretation. Combining, comparing, recombining, and recombining will disclose both hidden discrepancies and affinities.

Interpreting data places upon the investigator the duty of checking the accuracy of figures so that he may be justified in presenting his conclusions. He must check also with generally known facts, both for the purpose of disclosing some glaring dis-

crepancy and to make his conclusions more outstanding. General conditions, such as the present or past economic status, may save some embarrassing conclusions, if considered.

Sometimes a questionnaire will try to get unbiased judgments by approaching the prospect in two or three different ways. These answers must be checked to see if they coincide. There must be consistency in figures if they are to be comparable. Sometimes it is necessary to establish an arbitrary basis of units for interpretation.

PRELIMINARY STEPS OF INTERPRETING

While much of the explanation of the preliminary steps of interpreting must, because of its nature, be general, there are certain thought processes that may be analyzed, such as definition, classification, and comparison, which may be more clearly delineated.

Definition

Definition is a matter of discovering like characteristics,—discovering distinctive qualities which differentiate it from other members.

“To define means to mark off boundary lines, to set limits, to hem in and pin down.”²

To illustrate the importance of definition as a tool in solving a business problem, a manufacturer is trying to decide upon the best method of bringing his product to the person who is its logical buyer. He does not know whether to give dealers an exclusive agency for it or to let any merchant sell it who will. This problem can be intelligently solved only when he has defined his product as a specialty or a general utility product, and knows the type of merchandising best adapted to each.

Classification

Classification is a second process of interpreting. Its purpose is to make clear the boundaries and outlines where units of measurement have been discovered on the basis of like characteristics. One step in the process of classification is from the general to the specific. For example, consumers are “broken down”

² McCURE, M. T., “How to Think in Business,” p. 112, McGraw-Hill, N. Y., 1923.

into various income classes. It is shown of what the general consists. In the other step, the process is from the specific to the general. A mailing list is built by multiplying the typical prospect. One builds from individual facts to an orderly system on the basis of like characteristics.

The reason for classification is that the mind cannot grasp the full significance of miscellaneous and individual facts even when the meaning of each is understood. Moreover, it is just as difficult to grasp the meaning of facts in a lump. In manipulating data, according to the nature of the subject, they may be classified naturally or artificially. The one is based upon the essential qualities inherent in the units dealt with or the nature of the evidence they are to reveal. For example, subject matter is a natural basis for classifying data. The other division is made upon an arbitrary basis; source of data is an artificial basis. The latter often serves a practical purpose. Too much attention cannot be given to the care in the grouping and arrangement of facts since all subsequent steps depend upon this care. The classification is the "culmination of analysis which began with the collection of facts."

The purpose behind classification is to define and relate the observation in question to some broad principle established by past experience.

Comparison

Comparison is one method of weighing of all factors to reach a conclusion. For instance, comparison was used in interpreting the data collected in a study of the best methods of marketing a certain household device. The replies were brought together from several hundred questionnaires, tabulated, and analyzed. The facts which they seemed to indicate were compared with the evidence secured by three field men, who had called on householders in a dozen representative places. The two classes of data corroborated each other for the most part. In two respects, they differed, and the differences showed that one of the questions asked by mail, although carefully worded, had been answered in different ways. For this reason, only the field work could be relied upon in settling the point.

PROCESSES OF INTERPRETATION

Interpretation has two other fairly divisible processes used in solving business problems. In the one, we are trying to find inferences or to get a hint of what should be done. In the other, we are reasoning which is verifying these inferences functioning as working hypotheses.

FORMING INFERENCES

In this first step we are engaged mainly in describing things "which are little known in terms of other things which are better known." This process employs generalization and analogy in forming inferences. We are asking what do these facts, opinions, etc., suggest? What idea comes from this circumstance? What should be done about this situation? What do certain things point to, indicate, signify, imply? Every suggestion or inference, is a "leap" from something which is observed to something which is implied. Every term such as "hunch, hint, clue, conjecture, guess, scheme, project, proposal, plan, program, policy, etc.," which we apply to an inference or a suggestion points in two directions, says Professor M. T. McClure:

"It points backward to the problem and it points forward to its solution. That is to say, they are inferences. The word inference literally means to carry on or to bear. Each of these words is a leader; its business is to carry one forward; it is a proposal for action. Suggestion, therefore, has a special function, and each particular suggestion is a possible solution to a problem."³

Origin of Suggestion

Since the first stage of interpretation is the stage of drawing inferences or getting suggestions, and we have just studied the nature of suggestions, we may well pause to consider the origin of suggestions. Where do they come from? It is pretty well recognized that they depend on what is called "mother wit," original powers of intelligence, and past experience and training of the individual. If a person has a fertile mind, he will think of a great number and varied suggestions. If he has a profound mind, he will bring forth suggestions of good quality. Past ex-

³ McCLURE, M. T., "How to Think in Business," p. 55, McGraw-Hill, N. Y., 1923.

perience, with a certain subject and training, gives the thinker readiness to respond to a situation with appropriate suggestions. One who has long managed a business knows what to do in the way of curtailing production, number of salesmen, etc., to adjust them to the various changes in market conditions.

To depend upon getting suggestions from "mother wit," if one has no background in subject matter, would be hopeless.

Likewise, without native ability no matter how much knowledge of subject matter a man has, he can solve few business problems. The one supplements the other. Many writers, moreover, are very pessimistic about aiding inferences to come. They say a suggestion *gets* the investigator. People cannot *get* a suggestion. If this idea is correct, there must at least be some things which the investigator can do to put himself in the way of suggestion. Something has already been said as to how the working over of data in formulating puts him in a position to get ideas indirectly if there is no way to get them directly. Certain considerations of practical importance can also be given as aids to getting inferences such as:

1. *Make a start.* This may mean writing down whatever comes to your mind in any way applying to the solution of your problem. It may mean utilizing a set of questions used in attacking another problem. It may mean imagining you are talking to a friend and trying to explain what constitutes the problem. Any one of these things may stimulate suggestions.

2. *Talk the problem over with someone.* The effort of expressing our ideas to another, or to disprove suggestions made by the other person stimulates the mind. It also helps one to overcome the initial period of depression that characterizes the early stage of solving a problem. The presence of another human being removes a certain feeling of helplessness and substitutes the extra persistence necessary for productive work.

3. *Record ideas as they occur.* Many articles have been written on methods which men successful in their chosen fields use in attacking and solving the problems.

We find by reading these articles that these men often have a pad and pencil handy so that they may jot down any clue to the solution of problems that may come to them while engaged in their daily tasks. Others have dictaphones in their offices or bedrooms for the same purpose. Either method shows that busi-

ness executives recognize the importance of catching the idea on the wing and recording it before it escapes forever, knowing that it can be coaxed back only with much effort.

4. *Take time to relax.* The phenomenon of finding a solution, as soon as one ceases conscious effort to make it come, is too well known to need comment. Most people have struggled to recall a name and have it come to their "minds" at the moment they think of something else. They have experienced inhibitions while talking on their feet or in conferences and then have had a veritable flood of ideas come as soon as they rest at ease in their own offices or in their own homes. The same thing happens when they are solving problems.

5. *Persist in solving the problem.* As important as relaxing is returning to the problem to wrestle with it. "Knowledge comes but wisdom lingers" is the often quoted saying that makes people know why it is well to persist. The ideas richest in quality are likely to come most slowly. Out of connections and associations formed in the brain, a solution finally appears. From these methods which are helpful in stimulating the flow of suggestions, a solution to a problem may come which our judgment tells us is appropriate. It seems to be adapted to all the circumstances in the case. It is called an idea or working hypothesis because of all the suggestions that have come, it seems most fitting.

APPLYING REASONING TO INFERENCES

After forming an inference or inferences in solving a business problem, the next step is to give to them the consideration known as reasoning. It is the link between inference and conclusion. In the words of Professor McClure,

"To reason is to judge the relative value and validity of ideas. It is to deal deliberately with your problem. It is an active and constructive process in which the attempt is made to discover, select, arrange, invent, develop, test, and apply ideas as means to ends."⁴

Reasoning involves two processes or operations, induction, or formulating hypotheses, and deduction, or testing the hypotheses as solutions. These operations conform to two parts of an

⁴ MCCLURE, M. T., "How to Think in Business," p. 69, McGraw-Hill, 1923.

inquiry: the getting of information and the testing of information. One is concerned with discovery. The other with proof.

These two operations, induction and deduction, need further explanation since both enter into the reasoning process that takes place between discovering an idea and recommending plans of procedure, schemes of development, and policies of administration in business. The plan, scheme, or policy becomes a working hypothesis which must be tested, verified, and proved. In passing from discovery to proof, reasoning changes from induction to deduction. If explanation of these well-known forms of reasoning is needed, it may be said that both depend upon axioms: induction is the axiom that whatever is true of the parts is true of the whole; and deduction is the axiom that whatever is true of the whole is true of the parts.

An illustration of how these two processes of reasoning interplay will make their application to the solving of business problems clearer. The illustration is taken from an everyday discussion. One of the commonest subjects of discussion of people who are interested in investing is whether or not stocks or bonds are a better investment. The key to the solution of this problem is in some such phrasing of the idea as this, "What a person should invest in depends on what set of individual circumstances his investment must meet." Considered on this basis, we can arrive at a rule of guidance. If one needs a uniform and a regular income, and if he wants to be reasonably certain that at a specified future date his capital will be returned, he will invest in bonds.

In this reasoning, the movement of thought has been forward from the problem, "What should guide us in investment" to the enunciation of a general principle or a working hypothesis. As soon as we have formulated the guiding principle "Buy bonds if you want a regular and fixed income," we have set up a working hypothesis. In the future when there is thought of investment, the rule will be used as a guide to action. All that needs to be determined is whether the case comes under the rule. In seeing whether a particular case comes under a rule, we are led to a close scrutiny of such initial facts as need of a uniform income; need of a regular income; and need of the return of capital at a specified time.

As long as we were trying to answer the question "What

should guide a person in investment," the trend of thought was forward, and the process of reasoning inductive. The rule, "It is the specific needs that determine a type of investment," is a guiding principle of action. Wherever it is applied to a specific case, the process of thought is deductive.

Generalization

Generalization and analogy are clearly defined processes in forming inferences. Generalization is used in interpreting data when the investigator reasons from selected instances or facts to the formation of a general law based on these instances or facts. It is based on the assumption verified by frequent experience that things which resemble each other in several of their characteristics or qualities will probably resemble each other in other characteristics or qualities.

How far data under consideration have identical characteristics, the investigator has an opportunity to learn during the process of defining facts, opinions, etc., or of classifying them and his success in reasoning correctly by generalization, i.e., by forming the conclusion that because things are alike in certain respects the things are alike in all respects rests upon how complete the analysis is. If the analysis is complete, the conclusion will be certain. In business, however, generalizations are always being made on the basis of samples of data. The success of the generalization will depend upon whether these samples are truly representative of all the data. For this reason generalizations do not establish certainties but probabilities for drawing inferences, which is the first stage of interpreting.

As an example of using generalization as a basis for inference is a man who invested one thousand dollars in common stock of an investment trust dealing in common stock of utility companies, when it was offered and found that in less than one week he could sell it for two thousand dollars. Shortly afterward common stock of another investment trust dealing in common stock of other utility companies was offered. He immediately invested a thousand dollars and almost doubled his money. Stock of another investment trust dealing in common stock of railway companies was offered, and again he participated, but after holding the stock for several months and finding that the interest he was paying to carry it on borrowed money was greater than the

appreciation on the stock, he sold out, realizing that not all investment trusts were the same.

The interest of the public in investing in utility companies was greater than in investing in railroads.

Analogy

Analogy is a means of forming inferences on the basis of data so alike generalization in the reasoning process as to be frequently confused with it. In generalization we are assuming that things will be the same if they are alike in some respects; in analogy we assume that because it has one characteristic in common or even several characteristics in common that it will have still a third characteristic in common.

In inspecting roads a highway commissioner will examine every tenth mile of paving and give his approval of the entire mileage on the basis of samples examined. He is generalizing. In selecting an employee a personnel director in the investment banking may find that a man who has high grades in college does excellent origination work. If he reasons that the college graduate with the highest grades will also do the best in selling he is using analogy.

TESTING THE REASONING

Fallacies

Assuming that the data are correct, there may be many fallacies in interpreting them caused by inaccurate reasoning. A careful investigator will check his results against such a list as the following. It might be added that many of these fallacies are also applicable to the collecting, recording, and formulation of data, and this same suggestive list might be used with profit in those steps.

Comparisons made between things not having common qualities.

Facts indicated that simply cannot be produced by the conditions.

Something considered as a cause which is really an effect of another cause.

Facts that happened to cause a certain effect, but would not do so regularly.

Assuming as a cause something that operated after the effect had already obtained.

Using a cause that is inadequate to produce the effect.

Begging the question.

Hasty generalization.

Assigning a result to a single cause, when it is the result of a combination of causes.

Using cases that are not typical.

Applying as a general law the results of a particular deduction.

Insufficient data to warrant conclusions.

Insufficient definition of terms.

Depending on testimony that is of little value.

Insufficient, doubtful, or prejudiced authority.

Improper use of analogy.

Persuasion employed as proof.

Results considered as authoritative that are based on too few or improper figures.

Comparing data that were collected from shifting points of view.

Presenting unconnected results.

Hasty Generalization

Errors in reasoning resulting from hasty generalization are so common that it warrants special attention. Hasty generalization is drawing conclusions from too few data. This may be the result of not sending out enough questionnaires, of not securing enough interviews, or of not covering the subject comprehensively in the library. Because business research must often follow the trial-and-error method, it is easy to stop before enough facts have been considered to make the accuracy reasonably sure. A flu epidemic is not necessarily in the offing because twelve people have it.

Tests for generalization are:

Are there enough illustrations?

Are there many exceptions?

Are the illustrations fair specimens of the right class?

Are the causes and effects properly related?

Is the cause sufficient to produce the effect?

Is the effect from a different cause?

False Analogy

Analogy is not proof and has little place in the interpretation of data unless it be as an aid in setting up a working hypothesis in a situation about which there is really little known, but the worker is familiar in another similar field. Knowing what he is doing, the investigator can use just the parts of the analogy necessary and disregard the rest. To put this in the report as proof is to invite misunderstanding, because to be good evidence, two objects must resemble each other in all points, which is seldom true. Analogy may create a high degree of probability, but seldom final proof. Analogy is largely persuasion, but persuasion is not proof. Used merely to arouse interest, attract attention, or to set up a comparison for the sake of clearness, analogy is a desirable instrument.

Some tests for analogy:

Are the basic facts really true?

Are the points of comparison or contrast identical?

Does the similarity outweigh the differences?

Is it directly in line with the other proof?

Is the analogous case true?

The following list of tests of evidence to be used in interpreting data is taken largely from an instruction manual of the Meredith Publishing Company: ⁵

Is the evidence free from prejudice and bias?

Are the facts pertinent and essential?

Are they representative?

Are they accurate and reliable?

Are they comprehensive?

Are the facts comparable?

Do statements seem possible and probable?

Do other circumstances, besides testimony, prove it?

Is reference to authority definite?

Is authority competent?

Is authority prejudiced?

Does the authority have the opportunity to know the facts?

Are the facts out of date?

Are facts the result of hearsay or observation?

⁵ *Research Manual*, Meredith Publishing Company.

Is authority aware of the significance of his statements?

Do authorities agree?

Will this authority be accepted?

For what purpose were the authority's data originally collected?

Have his data changed any recently?

Do the data cover the scope set?

USING REFERENCE IN TESTING CONCLUSIONS

After the investigator has verified and tested his conclusions to the best of his ability, after he has followed the solutions in imagination to see what will be the necessary consequences and compared the consequences with the actual facts of the problem, he uses the method of referendum to test the accuracy of his data and the logic of his reasoning in coming to certain conclusions. He may do this by:

1. Seeing if a number of people reading the report come to the same conclusions.
2. Referring the findings to people chiefly interested in results that they may have a chance to disagree.
3. Referring the results to authorities on the subject matter.

The conclusions and recommendations are often presented orally first that the investigator may see the reaction of the client or the executive to them. This is done not that he may change his conclusions and recommendations, but that he may adapt his presentation of them to the people who have the authority to act upon them.

When there is copious evidence, and conclusions are clearcut and obvious, recommendations may be definite and with few details. Where needed information is not complete, or the significance of certain items is not wholly clear, it is preferable to qualify recommendations carefully; or to call attention to the fact that the evidence supports two plans of action. In such cases, it is often necessary to introduce all supporting data in order to make clear the relative weight and the exact character.

The test of a report after all is said or done is whether or not it brings about the plan, program, or policy recommended.

Applying these tests before writing the report is highly desirable inasmuch as it will not only furnish a last check on the validity of the conclusions, but will show weak spots, strong points, and other things that will need to be mentioned specifically in the written report such as the omission or inclusion of certain facts, specific examples, representative nature of the facts, etc. In short, testing the facts and conclusions is not only an important point in interpretation but will review the highlights of the investigation and leave them fresh in the mind before writing.

CHAPTER XII

MAKING THE OUTLINE

I. Definition—II. When the Outline is Planned—III. Practical Value of the Outline—IV. What is Included—V. Form of the Outline—VI. Arrangement of Material: A. Logical Arrangement; B. Psychological Arrangement; C. Chronological Arrangement—VII. Procedure of Making the Outline—VIII. Making the Brief.

A principle of report writing constantly reiterated is that a report should be accurate and complete as to fact and sound as to conclusion. The foundation of these qualities is, of course, in the care and accuracy with which the data have been collected, and the logic with which the conclusions have been drawn. An equally essential principle is that the material shall be convincingly presented. As the investigation is being made, and the data are being formulated, the research worker is forming his conclusions. His next task is to convince his client, through his reports, of the soundness of these conclusions and their resultant recommendations. He is therefore confronted with the problem of what material to include in his report, how to arrange his material, and how to illustrate it. He must, in other words, draw up a scheme of arrangement. He must decide upon the form of the report. He must make it logical. He must make it convincing. The function of the outline is to aid in accomplishing these things.

DEFINITION

An outline is the final step in the organization of material before the writing of the report. It is the orderly arrangement of subject matter in topical or sentence form, showing coordination of parts in some determined sequence. It differs from the brief in that the brief is outlining carried a step further. A brief is the orderly arrangement of subject matter in sentence form indicating clearly and concisely how the writer develops conclusions from the evidence. The working outline drawn up

during the preliminary survey defines the type of problem to which the case under examination belongs. The final outline following the standardized or skeleton form rounds out the material into a body.

WHEN THE OUTLINE IS PLANNED

The outline cannot be planned in its final form until conclusions have been deduced. It is prepared only after a careful weighing of all factors to main factors and supporting factors. The arranging of the main ones in the logical order together with subordinate ones is the means of organizing material into a final outline.

PRACTICAL VALUE OF THE OUTLINE

The outline is an important tool in obtaining good organization, and good organization is a means of making a report clear, concise, and convincing. In fact, the reading of many reports which have failed to be convincing shows that few of them were evidently prepared from an outline.

The principal point in preparing an outline is to keep the relation of main points to each other and to the purpose clear. It should show also what material develops each main point. If there were only one point to be considered, outlining would be easy, but many investigations are so broad that the outlining is extremely complex. It is not difficult to depict main points as subordinate or to relate a subordinate point to the wrong main topic. There are bound to be gaps in the outline. The outline will be logical only when it shows the relation of main points one to the other and of each one to the end in view.

Through outlining, the person may discover that he is covering too great a scope in his report. His outline may make him see that he is not striking at the core of the matter, various objectives are irreconcilable, or interpretation has led to an erroneous solution. As the material collected is put into intelligible form by means of the outline, whatever part of the analysis is unfinished becomes evident.

WHAT IS INCLUDED

The client's information, character, and temperament determine, to a great extent, what to include in an outline. A director

of a research bureau advises the men who write reports for him thus: "Since a business man has only limited time at his disposal for reading a report, since he must be given credit for having intelligence and a certain knowledge of the activities under his charge, he should not be burdened with lengthy reports, if avoidable."

There are executives who criticize a letter if it is more than one page long and those who condemn a report of over two or three pages. If the person who reads the report is the kind that drives at the essentials of things, he is not concerned with detailed studies. One client will prefer figures, another will prefer charts. A summary of finding of facts and the recommendations are of more concern to the executive than the history of the investigation. The detail of the investigation, the history, etc., is nothing more than supporting data to conclusions and recommendations.

The nature of the problem to be solved determines to a certain extent what to include in the outline. Business research involves an answer to the question of what to do under given conditions. In essence, then, the outline is a summary of the course of action to be recommended and the facts directly suggesting a course of action under given conditions. Sometimes, executives want all evidence in order to weigh its soundness. The outline, then, must provide for a vast mass of information in such form as to allow it to be coordinated and easily comprehended. If the business question is of a simple sort, only enough supporting evidence need be provided, to make it sound reasonable.

How much evidence to include depends upon how many statements may be questioned. The advantages of giving adequate evidence is that (1) it satisfies questions of the reader promptly, (2) it makes a substantial piece of research, and (3) it gives executives a good idea of extent of the labor in making an investigation.

What to include suggests the topic of what to exclude. There are always interesting facts unearthed in an investigation not used in the reasoning which leads to a solution. These may be mentioned and then dismissed. The problem can be so phrased as to exclude some extraneous considerations.

Since the subject matter of reports varies widely only very

general statements may be made of what to include. The following list of topics will be suggestive.

Material Included in the Report

1. Statement of problem for which an answer is sought.
2. Statement of conclusions brought out by the study.
3. Description of conditions under which study was conducted.
4. General description of procedure employed.
5. Body of material on which conclusions are based.
6. Appendix.
 - a. Supporting tables when necessary.
 - b. Further details of methods used if necessary.
 - c. Bibliography.¹

The body of the report usually includes the plan of action in getting it up; a statement of the actual machinery of investigation work; a statement of who was interviewed; why; and copies of questionnaires with the numbers of answers.

FORM OF THE OUTLINE

The outline may take any of the following forms: sentence, topical, word, or diagram. The experienced writer uses the topical outline more than the other forms. He finds that breaking up the problem into topics and then putting them into logical order to organize his material serves his purpose in organizing the report. The topics arranged in logical order make the outline.

The beginner in report writing will do well to employ the sentence outline or brief. So highly is the practice of briefing thought of in the study of report writing at Harvard University Graduate School of Business Administration that in the advanced courses reports are assigned to be handed in in brief form only. The reason for this practice is that complete statements overcome many errors in logic.

The relation of one statement to another is apparent; the bases on which conclusions are founded are also clearly brought out. When, therefore, a person is seeking facility in the writing of reports, he will do well to indicate the various elements or topics derived from analyzing the problem on a factor sheet. From the topics, he may develop an outline, from the outline, a brief, and from the brief, the written report. The brief may be the final step in rounding out the organization of the report.

¹ From the research manual of the Meredith Publishing Company.

The scope of research has become so extensive on account of the wide recognition in business of its importance that in many individual enterprises or in lines of industry standardized outlines have been prepared to guide the individual both in the selection and arrangement of material and in its presentation in its finished form.

The following is a skeleton outline prepared by the General Electric Company, Schenectady, New York, to guide those who prepare technical reports for them:

GENERAL OUTLINE FOR REPORTS OF THE GENERAL ELECTRIC COMPANY

The following general outline should be used as a guide when writing a report. The writer should follow the order of the main headings while working out that outline which applies to his particular subject.

INTRODUCTION...	<div>OBJECT (State briefly what was done and why.)</div> <div>IDENTIFICATION (Is it a comparison, description of new phenomenon or development of a theory? What is its structure? Utility or connection with the Art?)</div> <div>DEFINITION OF PROBLEMS (Detailed features of investigation and how far carried.)</div> <div>RELATED FACTS (References to earlier recorded work, etc.)</div>
PLAN.....	<div>ATTAINMENT OF OBJECTIVE (Was a series of experiments performed; were existing data collected or was a plan of calculation carried out?)</div> <div>BASIS OF COMPARISON (How and with what will the observed results be compared?)</div>
WORK	<div>SURVEY OF SITUATION (Testing equipment and arrangement described or theory and assumptions discussed.)</div> <div>PROCEDURE (Tests described or calculations performed.)</div> <div>RESULTS (Summarized data in comparative form. Show graphically when feasible. Answer questions likely to arise.)</div>
REVIEW.....	<div>ACCURACY OF RESULTS OUTLINED (If possible give percentage range of accuracy for various results.)</div> <div>COMPARISON OF RESULTS (Old <i>versus</i> new, etc., do they meet expectations?)</div> <div>ANALYSIS OF FINAL SITUATION (Completeness, effect on design, costs, production, etc. Are methods and results satisfactory?)</div> <div>FUTURE WORK</div>

Many other enterprises, both individual and associations, have standardized reports. The following outline on Water Works Design would serve as a guide for reporting upon any single project:

OUTLINE OF REPORT ON WATER WORKS DESIGN ²

- I. Title Page
- II. Letter of Transmittal—reasons for work and brief outline
- III. Table of Contents
- IV. List of Illustrations
- V. General Considerations
 - A. Population, present and future
 - 1. Maximum population provided for
 - 2. Extension provisions
 - B. Area within corporate limits, present and future
 - C. Topographic features
 - 1. Verbal description
 - 2. Topographic map
 - D. Probable effect on water consumption of transportation facilities, and industrial conditions
- VI. Installation and Development of Water Works
 - A. Causes leading to installation
 - B. Proposed method of payment
- VII. Source of Supply
 - A. Sources of supply investigated
 - 1. Catchment areas, natural lakes, etc.
 - 2. Alternative sources
 - 3. Source recommended
 - B. Area of land owned by city and available for water works
 - C. Description of wells
 - 1. Number, depth, size, construction, etc.
 - 2. Present available water and how determined
 - 3. Estimated supply
 - 4. Quality of water
 - D. Description of collecting reservoir
 - E. Arrangement of pumping station and lot (show plan)
 - F. Information concerning surrounding conditions and possibilities of contamination
 - 1. Present
 - 2. Future

² Adapted from a form outline prepared by Professor H. E. Babbitt, College of Engineering, University of Illinois.

VIII. Consumption of Water

- A. Number of persons using water supply, and per cent of population
- B. Number of persons living along lines of mains, and per cent of total population
- C. Number of persons and per cent of total population to whom water is available for lengths of service pipe greater than 400 ft.
- D. Water consumption
 - 1. Assumptions regarding average daily consumption
 - 2. Maximum days consumption
 - 3. Variations in consumption
 - 4. Hourly, daily, and seasonal
 - 5. Fire demand

IX. Pumping Station and Machinery

- A. Location of pumping station
- B. Description of building (sketch of interior)
- C. Description of well pumping machinery
- D. Description of service pumps
- E. Description of fire pumps
- F. Description of boilers
- G. Sedimentation apparatus
- H. Filtration plant
- I. Details of auxiliary apparatus to be used
- J. Description of pipe arrangements
- K. Method of operation

X. Distribution system

- A. General description of system
 - 1. Materials
 - 2. Measuring
 - 3. Recording
- B. Mains
 - 1. Feet and miles by sizes
 - 2. Miles per thousand population and per million gallons daily consumption
- C. Location of mains in street
 - 1. Position
 - 2. Depth
- D. Fire hydrants
 - 1. Number
 - 2. Location
 - 3. Average number per mile of main
- E. Location of valves

- F. Valves—number of various sizes, and number per mile of main of the various sizes
- G. Number of service connections now and later

XI. Equalizing Reservoir

- A. Location
- B. Operation and Control
- C. General description
 - 1. Material
 - 2. Dimensions
 - 3. Capacity
 - 4. Nominal storage
 - 5. Period in hours

XII. Pressure and Fire Protection

- A. Range of elevation within distribution system
- B. Normal water level at source of supply and anticipated level when pumping
- C. Ordinary and fire pressures
 - 1. Pumping station
 - 2. At hydrant in business district
 - 3. At extreme length hydrant in residential district
 - 4. At nozzle in business district
 - 5. At nozzle in residential district (max hose)
- D. Number and size of fire streams available with above pressures

XIII. Cost Data

- A. General items
 - 1. Land
 - 2. Building
 - 3. Right of way
- B. Pumping station equipment.
- C. Assessment—per inhabitant, per lot, general

XIV. Summary

XV. Conclusions

XVI. Recommendations

XVII. Appendix (some of this in the body)

- A. Profile—Gravity supply
- B. Drawing—equipment in IX
- C. Charts
 - 1. Boundaries
 - 2. Streets
 - 3. Buildings served and not served
 - 4. Location
 - 5. Size of mains
 - 6. Stand pipes
 - 7. Hydrants

- D. Graph—population
- E. Computation sheets
- F. Specifications

No outline can be standardized to suit every investigation. The following outline used frequently, however, will serve as a guide since it is susceptible of presentation of material in different forms.

I. Introduction

- A. Origin of commission
- B. Purpose
- C. Scope
- D. Method
- E. Limitations
- F. Conditions as found
- G. Historical sketch
- H. Copy of questionnaire

II. Body of Report

- A. Presentation of findings in summary form for each main section
- B. Explanations of how conclusions were reached
- C. Illustration of material in charts, diagrams, etc.

III. Conclusions

IV. Recommendations

Another scheme of arrangement very simple but usable is:

1. The statement of the problem.
2. Evidence.
3. Conclusions or recommendations.

In deciding on what to include in the outline, and its form, one has to consider very definitely the purpose for which the structure is intended and the proper interrelation of the various elements composing the structure. No one would build a house without first considering its purpose. The form of the outline is a "structure incorporating many elements. It is only by careful consideration of its purpose that the essential points can be disclosed and provision made to take care of them."

ARRANGEMENT OF MATERIAL

As analysis and interpretation go on, impressions form into conclusions, which may call for definite recommendations. These conclusions and recommendations are the ends toward which the

investigator has been working, and having reached them he is concerned with the proper writing of the report so that they may be adequately presented.

The arrangement of material in the text of the report does not necessarily follow the outline arrangement under which it was collected and filed. Generally speaking, the three arrangements available for the writer to use are: logical, psychological, and chronological. These three schemes and some of their applications are shown in the following table:

I. Logical

- A. The familiar followed by the less familiar.
- B. Sequence of topics according to definition.
- C. Sequence of topics according to a chain of reasoning.

II. Psychological

- A. Recommendation followed by argument, exhibits, facts, etc.
- B. Presentation of material in order of significance of points in accomplishing the purpose of the report.

III. Chronological

- A. Presentation of material in time sequence.

Logical Arrangement

Logical arrangement is to build up the case step by step until all the data have been presented in ascending order of importance to the definite conclusions and possible recommendations. This will usually demand a rather thorough introduction, setting forth the origin of the commission, purpose, scope, methods, history of the case, etc., so that everything may fall in its logical order in the development. This style is used particularly in submitting reports in which the reader is interested in every step in the development of the investigation so that he may either draw his own conclusions or at least know the complete steps taken in arriving at the conclusions presented by the writer.

Psychological Arrangement

Opposite to the slower logical arrangement in presenting data, we have the psychological arrangement which has found considerable favor among executives who demand results quickly, and among investigators in certain fields who needs must present their material in such a favorable light that they will induce a certain desired action.

When the psychological arrangement is used, the fact of most interest is assigned to the most strategic place in the report, its beginning. The arrangement has the merit of securing the interest of the reader at once.

In business research in which the data are collected chiefly as a routine matter merely to support or disprove a question, but not because they are important in themselves, the executive prefers the conclusions first so that he may grasp the issues and possibly leave the checking of supporting material to someone else.

The psychological arrangement follows no order of time, nor sequence in which the data were collected. In the annual report for the general reader, the two or three outstanding events of the year as reflected in the report will be selected for emphasis, while the minor facts are more or less buried where they will be available but not deadly monotonous.

Chronological Arrangement

The chronological arrangement of material is the arrangement in order of time sequence. This is found frequently in informational reports, particularly of a more or less historical nature. The fact that chronological arrangement is used in reports made as a matter of record, gives this style of arrangement importance. If the sequence in the method of doing a thing is the important thing, naturally things will have to be presented as they occur; otherwise the reader will be unable to duplicate the work. As a matter of historical accuracy, the actual time sequence may sometimes be of vital importance.

For emphasis, however, the chronological arrangement does not always lend itself well. From the angle of the average business man who wants his facts quickly, the chronological arrangement in reports is as slow and different as American vs. European style of writing a news story. If one member of parliament hits another member on the nose during an argument, the European reporter waits until his chronicle of the day's events reaches that news before he mentions it, no matter if it comes near the end of his account. Of course the American writer "leads" with it.

Just what type of arrangement to use will have to be determined by the investigator after considering his subject matter,

the purpose and nature of his commission, and his readers. All three types mentioned are perfectly legitimate methods of arrangement, each being best adapted to certain kinds of data.

To reiterate, no outline can be so standardized as to suit every investigation. Every piece of work requires a framework of its own, but the making of outlines can be greatly facilitated by knowing the principles which should govern them, the method of procedure in making them, and the standardized schemes of arrangement. If the report is to be logical, have balance and proportion, sequential, and convincing, these qualities must be planned for in the outline. The investigator must present his material in such a way that others will see the conclusions revealed by the facts. Frequently the plan is chronological. It is simply a narrative of the progress of the investigation. Again, it will be by topics. Certain phases of the investigation are to be reported upon, and the topics are arranged on the principles of logic, interest, or emphasis. Facts of most interest to the reader, or general facts are usually placed first; detailed aspects come later. Whatever is necessary to understanding should precede what depends upon it for understanding.

The principle of proceeding from the known to the unknown is as applicable to business reports as to other types of writing. When this plan is followed, the reader will interpret the material presented in the light of his experience. In arranging all parts of the report related material should be put together. Recurrence to the same topic is confusing to the reader. The basic principle of arrangement of material is to arrange and rearrange in the outline until the most logical order is found.

PROCEDURE OF MAKING THE OUTLINE

The outline is affected by the same factors as is the report. Of these various factors such as: how the report is to be used, cost and time limitations, character and personality of the client, official position of the client, desires and instructions of the client, subject matter, purpose of the report,—desires and instructions of the client loom largest. Each factor has some weight in determining whether or not the report shall be long

and formal, or whether it shall simply be a letter supplemented by conferences. The character of the report will have much to do with the character of the outline.

The first step, then, in the procedure of making the outline is to weigh these various factors, to see how much weight each should be given in selecting and in arranging the material. The second step is to focus definitely on the objective of the report. A definite idea of the objective helps to determine the order in which the evidence is to be presented and hence the sequence of the material in the report. The order of the parts of the report both as regards the physical elements of introduction, statement of findings, and recommendations must be set forth in the outline. If consideration of the various factors imposes no special problems in the procedure of making the report, the simplest way is to make the skeleton outline similar to the main points, factors of the problem discovered in the preliminary survey, and to set them down as guides in making the working plan. These will correspond to the main heads which will be employed in the table of contents. A separate head will be used for each main division of the subject and appropriate sub-heads under each main head to cover divisions of the subject. This affords a convenient means of arranging the contents of the report in logical order. The actual writing of the report will become, then, a filling in one or more paragraphs under each head.

Another method of procedure of making an outline preferred by some investigators is to write upon cards various topics, or main thoughts that occur to them during the investigation, and when ready to write the report, sort out the cards according to the scheme of arrangement—logical, psychological, or chronological—which he determines upon as best suited to the subject matter and the use to be made of the report. If he wishes to use the sentence form in making his outline, he will expand the suggestions into one or more sentences which will fully express the material the writer intends to convey. Every well-planned report is made up of a succession of stages or divisions arranged according to a recognized scheme. Often the stages are developed separately and given logical sequence after each is developed. This plan insures that each division of the outline will express a single point.

MAKING THE BRIEF

Difficulty in following the trend of thought from one section to another often indicates erroneous reasoning. Since this must be corrected, if it exists, before the report is written, the outline may be expanded into a brief which, because of the nature of its structure, will act as a test for thinking.

The brief emphasizes relationships between divisions and subdivisions, and on account of its completeness shows the basic structure in its stark reality minus the persuasion which may be added in the later writing.

Assuming that the outline is basically sound in the selection of main heads and supporting divisions, the brief tests the reasoning by expanding each heading, both major and minor, into a single, complete sentence, containing but one idea. Then by means of connectives, such as *by*, *for*, *still*, *and*, *because*, it definitely shows whether every subhead substantiates the preceding head.

1. The source of the water supply is adequate, for,
 - A. The present source of supply shows that,
 1. The catchment areas are plentiful, and
 2. There are alternative sources.
 - B. The area of land owned by the city available for water-works is in excess of possible needs.
 - C. Wells may be depended on to furnish a supply, for
 1. There are two at present that are,
 - a. Deep wells
 - b. Furnished with pumps
 2. Water is easy to get, and,
 3. The quality is excellent.

Because of the necessity for showing both sides of many issues, sentences will frequently be prefaced with such words as *although*, *yet*, and *but*.

For example—

1. Most of the 70 dealers interviewed expressed a preference for ironware, for

- A. The selling points are good, for
 - 1. Customers like the non-breakable feature, and
 - 2. Customers like the white exterior
- B. Although there are a few slow-moving numbers, because,
 - 1. Some sizes are not popular
 - 2. Three designs seem impracticable
- C. Yet the average turnover is satisfactory.

Although the heads in the outline are supposed to be exclusive of each other, an error is likely to occur that will be easily seen when briefed. For instance

- I. Funded debt
- II. Collateral loans

are not properly enumerated. The fact that collateral loans is a subhead under funded debt will be quickly evident when put in brief form.

When completed, each main division of the brief should read in logical sequence from the beginning to the last subdivision. Each division should be subdivided far enough to insure the right order of material in the paragraphs. Parallel structure should be maintained. If the sentence style begins with a prepositional or a participial phrase, that type of structure will predominate; else the brief will give the impression of indefiniteness.

Obviously it is not necessary to brief all reports. The length, purpose, and nature will be the determining factors. Annual reports that merely present a summary of different departments usually cannot be so closely unified as briefing demands. However, in reports that are intended to carry conviction and which consequently need careful, well-organized, irrefutable presentation of data, briefing furnishes the method by which they may be planned with certainty and written with facility, effectively adjusting all ideas to their various relationships.

Briefing is at first inconvenient for the inexperienced thinker and writer, but this last step before writing must be learned before the best and most elaborate work can be done.

CHAPTER XIII

WRITING THE REPORT

I. Purpose of the Written Report—II. Presenting the Report—III. Importance of Effective Presentation—IV. Contents—V. Cover—VI. Title Page—VII. Back of Title Page—VIII. Letter of Authorization: A. Situation; B. Specific Information as to what is Wanted; C. Use to be made of Results; D. Scope; E. Supplementary Data—IX. Letter of Transmittal: A. Use and Purpose; B. When Written; C. Nature of Contents: 1. May refer to origin of commission; 2. Review the case; 3. Indicate the purpose; 4. Indicate the scope; 5. Show Limitations; 6. Point to objectives; 7. Give references and sources; 8. Reasons for choosing material; 9. Summary of message; 10. Specific reference to certain sections; 11. Contain conclusions and recommendations; 12. Comments aside from the report; 13. Character of the staff; 14. Acknowledgment and appreciation; 15. Call attention to other things; D. Qualities of the Letter of Transmittal; E. Form.

Although the outline of the report may be considered the first written draft, the last step in getting the result of the investigation ready for presentation is the closely knit, written report which will present the results in clear, concise, and readable style, give executives needed information as clearly, accurately, and promptly as possible, and in a form which insures ease and quickness of apprehension.

Like advertising, in which the copy writer is the product of a different type of training from the research man, report writing requires of the investigator additional training if he is going to write his own report for presentation. Many poorly written reports which fail to get results are the product of men who were excellent in the field of research but weak in ability to write the results in a readable manner. Since many reports are and will continue to be written by the same man who makes the investigation, too much study cannot be made of the most effective means of presentation.

PURPOSE OF THE WRITTEN REPORT

Much research is done under the direct eye of business, done with the immediate motive of making or saving money for an industry. The cost of the engineering department may be balanced against the results accomplished, and to make that balance favorable not only the work done, but the report of that work must be convincing. Sanitary engineers must not only make an accurate investigation of a town for the installation of water works, but the report must touch responsive chords in the minds of the board or council before the vote is taken.

Before writing the complete report, the investigation should be fully ended. Then, unless the writer is thoroughly steeped in report writing, he will do well to rest before attempting to write, possibly devoting some time to picturing his prospective readers so that he can better adapt the presentation of his data later.

Sometimes it is necessary to do a certain amount of installment writing, such as a secretary does covering the result of a drive as soon as it is completed even though he is not going to use it till his annual report. Any installment writing should be a complete unit.

When the writer is faced with something like an annual report which can be prepared in sections, with considerable interval between, he will serve two purposes by writing sections as they become available—add freshness and accuracy to his style, and eliminate the worry at the end of the year usually caused when faced with writing everything at once. A file of good reports for reference is always an aid in writing.

The order of writing is usually reverse to the final arrangement of material. First the body of the report is prepared. Sometimes the charts and graphs are prepared before anything is written. The material is then summarized, conclusions are written, and recommendations are made. The report is then studied as a whole, and the material is arranged in the best manner to get the facts across to the reader. This may mean logical or chronological order, breaking it into definite units with the conclusions at the beginning, or at the end, and employing certain devices to aid in carrying conviction.

After the report is written, the table of contents is prepared,

the foreword or letter of transmittal is written, and the title page arranged. Material for the appendix is edited, and the report is ready for the typist.

This is not meant to imply that the body of the report is written in final form at one sitting. When there is a mass of data on each point, the first writing frequently becomes a matter of getting the notes on paper in some roughly organized style. Then comes the pruning, revising, polishing. If the writer is crowded for time, the final result will probably be wordy and indefinite. Like the copy writer, who, when asked to write a short advertisement, replied that he didn't have time to write a short "ad" but that he could write a long one if that would do, the report writer must work over his final product several times if he would get it down to its most compact and readable form.

PRESENTING THE REPORT

Report writing may be defined as the art of answering an assigned question in such a manner as to compel the particular reader to comprehend it. Mystifying reports defeat good research in the realm of business. Presentation of the report is concerned both with the form and language qualities. In form, the report should be as simple as possible, avoiding multiplicity of divisions that tend to make reading involved. However, everything should be divided, subdivided, and arranged in logical style so as to make the reading of the report inviting.

Many reports, the data for which have been carefully and accurately compiled, have been relegated to the great unknown because the writer did not know how to present his material. Careless presentation causes the reader to struggle with the report, and to fail to grasp the issues quickly or at all. The actual style and arrangement of parts will be discussed later.

Presentation is also concerned with the language qualities in the average business report. This is also true of technical reports, although the writers do not always recognize the fact. If a financial report is being written, the code of the financier may be used. It will not only make the report shorter and simpler, but will be more quickly grasped by the man who handles that code every day and consequently will be appre-

ciated by him. If this same report is going to a class of people who are not accustomed to financial terms, the language must be clarified, and those technical terms which are essential to the report will be used and then carefully explained.

A safe rule for the general audience or reader is that of the public speaker who assumes that the average intelligence of his listeners is considerably lower than might normally be expected. The more knowledge the writer has of his prospective reader, the more nearly he can adapt his language qualities to fit. In presenting his report, the writer should ask himself, "Just how much does my reader know in general and in particular concerning this subject, and in just how elementary a manner must I write, or can I be thoroughly technical." There is no excuse for an uninteresting report caused by slothfulness in language qualities.

Dealing with impartial facts, as does the report, the language should be as simple as possible—and unadorned. Flowery diction is not appropriate to the presentation of such material. Simple, correct, and direct diction is the rule, which means that the writer must have a wide, versatile vocabulary. Elaborate diction is oftentimes easier to use, but is not the child of directness.

IMPORTANCE OF EFFECTIVE PRESENTATION

To the executive, the report constitutes the investigation. Many times, he does not realize the amount of research necessary to provide the data which go into the final report. He sees only the results, and his vision is clarified regarding the conclusions in direct proportion to the effectiveness of the presentation.

An investigation, though skilfully conducted, is of little value unless its results are so presented that they can be grasped without undue expenditure of time. Occasionally the executive wants an oral report as soon as the data are formulated and rough conclusions drawn, but usually he prefers to have the story all together. Sometimes, he wants the result in such a short space of time after the conclusions of the investigation that the report must be hastily written, which is always at the expense of clearness and brevity.

Lack of effective presentation has caused many reports to miss serving their purpose and to be pigeon-holed with the accompanying loss of time and money. The writer knows that his data were correct, and his conclusions sound, but frequently never knows the real reason that his recommendations were not accepted.

A case in point comes to mind. A man made an investigation of a certain question that he knew would come before the next convention. Unable to attend personally, he submitted his report, containing urgent recommendations. When news of the convention came back, his proposition had been changed so that "all its teeth had been extracted." In talking the matter over with a member of the committee nearly a year later, he was chagrined to have the man say, "I understand perfectly what you mean now, but we thought you meant something else, and for that reason we changed it. If you had defined your terms the way you have just now done with me, it would have been perfectly clear." And another report with excellent data had failed because the presentation was not effective.

Effective presentation of the report is important because it is the means by which facts are rendered acceptable to select audiences and hence successful. Which is another way of saying that a good report adapts a certain set of facts to one or more groups of readers. In order to make the presentation most effective, a report intended for both technical men and laymen is often made "double," so that each part may be adapted to a class of readers.

A technical man's report may be a masterpiece so far as the data are concerned, but when he ceases being the investigator and turns writer, he often forgets that the subject matter of the report is to be passed on by a board of directors which is composed largely of non-technical men.

The object of a municipal report is to acquaint the taxpayer with the management of his government, and not to impress him with the technical knowledge of the city engineer. If a vote depends on making the situation clear, the data must be presented in a readable form, which means that they should be simplified, illustrated, analyzed, and visualized. Pictures of equipment additions, or of the mud puddles that became a paved street, or of the new fire truck that saved a business block will

attract more favorable attention than pages of solid reading matter or figures.

Different classes of people have different methods of thinking. Regardless of the class of the writer, if he would convince or persuade the reader, he must adapt his presentation to the reader's method of thinking in such a way as to produce the necessary result without distortion.

The writer of a business report is usually the interpreter of facts. He should know his material as the novelist knows his characters, and he should know his readers as the salesman knows his customers. Then by effective presentation, he will get his report read and make his facts leave the impressions that they should convey, instead of falling on barren ground through lack of precision, tactlessness, verbosity, or generalities.

CONTENTS

Before discussing in detail the contents of a complete formal report, the reader will probably want to glance over the outline of elements again. Naturally, all of these elements are not found in every report, but many of them will be found in varying combinations.

- I. Cover
- II. Title page
- III. Copyright notice
- IV. Letter of authorization
- V. Letter of acceptance
- VI. Letter of transmittal
- VII. Letter of approval
- VIII. Table of contents
- IX. Table of charts and illustrations
- X. Foreword
- XI. Preface
- XII. Acknowledgment
- XIII. Synopsis
- XIV. Body
 - A. Introduction
 - B. Text
 - C. Conclusions and recommendations
- XV. Appendix
- XVI. Index

APPRAISAL OF PROPERTY
OF
THE LOGANSVILLE
WATER SUPPLY COMPANY
LOGANSVILLE, INDIANA

CANVILLE & PHILLIPS, INC.
BOSTON, MASS.
1928

The following combination is favored in many short, semi-formal reports:

- I. Letter of transmittal
- II. Purpose or object, and methods
- III. Conclusions
- IV. Recommendations
- V. Supporting details
- VI. Appendix

COVER

The cover of the report is, to a large extent, a duplication of the title page, although it usually does not contain quite so much detail. The cover serves the twofold purpose of protecting the report and conveying the title. Since the report may receive severe handling, the paper should be of a substantial nature. Inter-departmental and inter-house reports that are not too bulky are usually bound in a tough paper such as lawyers use to enclose briefs, contracts, etc. Ordinary manila folders are sometimes sufficient. These are soft enough to be folded if necessary. The edges of the cover should overlap the inside pages slightly for protection. Larger reports may be bound in still heavier, imitation leather paper, while large reports that will receive a wide circulation and will be filed permanently, will be bound in regular cloth or leather binding.

So that the reader will not have to open the report, the title should be plainly set forth on the cover. This should be in the shortest usable style, because, like a book title, a long sentence will not be grasped easily and quickly. The cover title should contain the gist of the report so that the librarian will have no difficulty in correctly filing it.

The writer's name should appear, and if the report is public or semi-public in nature, the address of the writer or company putting out the report may appear. A design or trade mark is not out of place on the cover.

In discussing the contents of the title page, some things may be mentioned that in a few instances might also be included on the cover, such as a bulletin number, date, and mailing privilege notice.

AN EXAMINATION
OF
GRAPHS AND CHARTS
FOR BUSINESS USE

*Made for the Chamber of Commerce
Cleveland, Ohio*

BY
G. NOEL SIMS
STATISTICIAN

February 24, 1929

BUREAU OF BUSINESS RESEARCH
CHICAGO · ILLINOIS

TITLE PAGE

The actual phrasing of the title should be in as few words as possible to indicate accurately the content of the report. There should be no air of mystery, as the title to a short story, "How the President Won Out." The title should attract attention, but should not be misleading, and it should be impartial with no indication of results.

Short words, indicative of the subject matter, should form the title. Like a good newspaper head, the title will usually be stronger if it contains a strong noun and active verb in its structure, although this is not always practical.

Many reports are misfiled by librarians because the titles are ambiguous or not pertinent to the subject matter. As a test in writing the title, the writer may ask himself where he would file the report. The librarian will not only be thankful, but the title will be clear to others.

In some technical reports, it is sometimes necessary to employ a title that is fifty or a hundred words in length. When possible—and with the proper thought and approach it usually is possible—a short, readable subject should be deduced from the mass to serve as a guide in filing, to attract the attention of the searcher, and to appear on the cover. Then after the subject on the title page can follow, possibly in different sized type, the complete paragraph, which will serve as an explanation for the more abridged title. If there is a word in the short title that might be misconstrued, the following paragraph idea can be utilized to define it.

Following the subject of the report should be the name of the writer and his position. Sometimes the rank serves as an explanation of why the report was prepared; sometimes it identifies the authority of the writer to make the report; and sometimes it determines the amount of authority to attribute to the report. To sign the report "by John Smith" with no explanation as to his rank or reason for writing is to invite lack of consideration to what might be a report well worth reading. For reports within one's own organization it is still well to add some means of identification because every executive who reads the report does not know each person in the organization, or why he prepared the report. Merely adding the department may be

sufficient identification. When made by a board of directors to stockholders, the writer's name is sometimes omitted, but it seems best to sign the name of the chairman of the board.

Following the name of the author should be the name of the person or company for whom the report is made. Sometimes this is so important that it precedes the name of the writer. If the report is made for "Mr. G. H. Cady, President, Universal Service Company," his position and affiliation should follow his name. The very fact that such a man asked for the report may give it added value. Also, the title page acts as a record for such information, and as a bulletin board where the reader can determine the reason for the writing of the report.

On the title page, usually at the bottom, should appear the date that the report was prepared. This saves a reader from wasting time before the nature of the data makes him realize that he is reading a 1920 report, then out of date, when he wanted the 1928 report by the same man. The date also aids in the matter of filing and of records.

The address of the writer or company preparing the report should be on the title page, usually at the bottom. This should be the complete mailing address, so that any inquiries sent regarding the report will not go astray.

If a report is put out by a company with no personal responsibility upon any one man, the "prepared by John Smith, etc.," line will be omitted from the title page, and the name and address of the company at the bottom of the page will suffice.

A report which has been supplemented, revised, or criticized by another man may carry that fact in a note on the title page. Oftentimes, the comments or criticisms of some known authority appended to a report will make it more valuable and the fact should be displayed on the title page to attract attention.

If the report is the result of an experiment carried on with the assistance of some other agency, a record of this fact will be made on the title page.

On the whole, the arrangement of the elements of the title page should be in the order discussed, namely,

Subject

Elaboration of subject, if necessary

Name of writer

Position or rank

COLOR IN TECHNICAL ADVERTISING

(Especially Adapted to the Small Tool Industry)

REPORT PREPARED BY
J. R. HUMPHREY
Advertising Department

[COMMENTS AND CRITICISMS BY]
E. A. BIVINS, DEPARTMENT HEAD]

SUBMITTED TO
H. K. BURNSIDES
General Manager, Acme Tool Company

WILLIAMS ADVERTISING AGENCY
28 BROAD STREET · CHICAGO
1928

Name of man collaborating or giving comments, if any
Position or rank
Name of man or company for whom report is made
Position
Address
Address of writer or his company
Date of report

The arrangement of this material on the page in regard to display, type size, etc., should be studied so as to make the most pertinent parts stand out most prominently. The parts of the subject emphasized should usually give the librarian or reader the correct hint as to the important words in the sentence.

BACK OF TITLE PAGE

The strictly formal, printed, long report will follow the book style of either leaving this page blank, running the copyright and date notice, or some trade mark design.

With space at a premium as in shorter reports, this page is frequently utilized for a list of the officers, directors, and office addresses of the company.

A paragraph of pertinent notice to the reading public is used on this page sometimes as in this:

Copyright, 1928

By

Association of National Advertisers, Inc.

"The Association of National Advertisers cannot approve the use of any portions of this report dissociated from the whole, nor can it endorse any conclusions which may be drawn except those specifically stated herein. Therefore, permission will not be granted for partial reproduction except as specifically authorized by the A. N. A. Research Council and subject to such conditions as the Council may prescribe." *

A company making financial reports uses this space for a similar notice:

"This report is based upon information collected by our own organization from official and public records and other sources which we regard as trustworthy. In all such work we seek to use only facts and figures drawn

*Reprinted with permission of the *Association of National Advertisers, Inc.*

from original printed authorities, or secured by our own inspection of properties and inquiries of officials and known experts, rather than to rely upon secondary books of reference. Thus we aim to secure—though we obviously cannot guarantee—accuracy in facts and reliability in conclusions.

Our clients may learn, on request, our authority for any statements which supplement or correct those commonly accepted as the basis for action upon investments.”

Copyright, 1927

By

Wood, Struthers & Co.*

Printed in U. S. A.

Occasionally, especially in annual reports, this inside page is used for “In Memoriam” notices for the death of some official.

LETTER OF AUTHORIZATION

When a man is assigned to make an investigation, he usually receives authority from some source. This may come from an executive, a client, legislative act, action of board of directors, etc.

A review of the terms set forth in this authorization is often of value to the reader. This review may be given in various ways: by including a copy of the original letter of authorization received, a reprint of that section of the minutes bearing on the subject, or showing the legislative act.

The questions peculiar to the investigation are usually found in the authorization, and a review of them before reading the report will furnish a good background.

When the report goes to one man only, the letter of authorization may be detached and presented separately or omitted entirely and presentation made verbally. Again when the nature of the authorization is comparatively simple, a brief reference to it may be made in the letter of transmittal that will suffice.

When the authorization is in the form of a reprint, it may appear on the page following the title page, on the left-hand page just preceding the first page of the writing of the report proper, or it may comprise the first section in the body of the

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report. When appearing on a page alone, a reprint is frequently "boxed."

A characteristic letter of authorization usually contains the following divisions:

Situation

The authorization briefly shows the need for the report, or the predicament to be remedied. For example, a man owns land near a new oil field and wants a geologist's report before he leases, or a company wants a detailed report on direct mail before preparing next year's budget.

Specific Information as to What is Wanted

The more specifically the authorization states what is wanted, the better the investigator is equipped to present relevant facts. Or it may save later correspondence to clarify the details. Conciseness in asking for material will save money and time, as well as enable the worker to adapt his report to conditions.

Use to be Made of Results

When not contrary to business policy, it is sometimes well to tell the investigator the use to be made of the results. If he knows that his report is to go to the stockholders, he can adapt it more specifically than if he thought it was going to the board of directors.

Scope

If the executive authorizing the report has any definite limitations in mind, he should make them clear in his letter. If he is interested only in magazine advertising, he should expressly eliminate newspaper advertising from consideration. Financial limits should be set, if deemed necessary.

If the report must be prepared within certain time limits, this should be mentioned. If an investigator is to be rushed for time, it will be necessary for him to know it throughout each stage of the investigation.

Supplementary Data

A suggestive list of questions to be answered, samples of a product to be examined, etc., may accompany the letter of authorization. An example of this was discussed in the chapter on "Preliminary Analysis."

Letter of Authorization

DEAR SIR,

The members of this organization are frequently confronted with the problem of displaying facts in a way that can be clearly visualized.

A member may wish to express an idea to the board of directors, to the stockholders, or to the public. In many cases it is difficult to determine what method will present the facts in their true proportions.

We want to employ your services in making a survey of graphs, charts, diagrams, and similar methods, which can be used to advantage in clearly presenting facts. This survey is to include a thorough discussion of each method and is to tell how and when it is used.

Please let us know if we can furnish you with any more information that will help you in preparing this report.

If at all possible, we should like to have this report before March 30, so that we may have the use of it a full month in advance of our annual report which is presented in May.

Yours truly,

LIMA TOOL COMPANY,

By H. K. Sloe.

LETTER OF TRANSMITTAL

Use and Purpose

The letter of transmittal, which usually accompanies a strictly formal or semi-formal report of some length, follows the title page, unless the letters of authorization and acceptance are included. This is also called a "covering letter," partly because it bridges the gap between writer and reader, and partly because it may be used to cover various points which should be brought to the reader's notice but do not belong in the body of the report.

The purpose of the letter of transmittal is:

- to establish contact
- to orient the reader
- to transmit the report

In a strictly formal report, this transmittal is in the form of a brief, formal note from the writer to the reader, serving as identification of the report. When it goes through the hands of

another official before submission to the final authority, this official, frequently the head of a department, countersigns the letter to indicate that the report has his approval. Should he revise it, the revision is indicated by an explanatory note.

The length and nature of the letter depends to a large extent on the formality of the report, and upon the authority of the investigator. In the letter of transmittal accompanying a semi-formal report, the personality of the writer is not entirely hidden behind a formal screen. If the investigator is a recognized authority, his letter of transmittal may properly assume longer proportions, and he can branch out more than would be discreet for the unknown writer. The letter of transmittal of a recognized authority is often little short of a synopsis, in which case the executive, feeling that he can place confidence in the report, may read only this brief summary, leaving details to others.

Many times the entire report is contained in letter form, in which case that which usually constitutes the transmitting element is found in the first paragraph of the letter.

In printed reports for public consumption in which the personality of a letter is not desirable, the content of the letter of transmittal is embodied, to a large extent, in the preface or formal introduction. Some public reports are cast entirely in letter form, but this is usually a strictly formal affair which adds very little personality to the message. Some of these public letters in recent years, however, have been written with a little more personality to them.

The letter of transmittal orients the reader by calling to mind such things as why the report was written, some of the things requested, what had to be omitted if anything, and possibly a hint as to the results. Even to the reader who authorized the report, the details of the problem may be dim, and his mind needs refreshing. In reading further concerning the possible contents of the letter of transmittal, many uses will be apparent.

When Written

The letter of transmittal is written at the completion of the preparation of the report, when all data have been analyzed, and conclusions and recommendations made. At this time the writer is not only familiar with what is in the report, but with any de-

tails that have been omitted for the sake of unity but which may often be desirable in the letter.

Nature of Contents

In discussing the contents of the letter of transmittal, this list given is merely suggestive, the arrangement regarding order is merely tentative, and the writer of a report is not expected to us all in any one letter. The contents of the letter of transmittal must necessarily be adapted to the report and conditions surrounding the investigation. With somewhat more formal handling, the contents as here listed can also be used in a preface or foreword.

May Refer To Origin of the Commission.—The first paragraph of the letter usually refers to the origin of the commission, the date when the writer was authorized to make the investigation, the following of certain specific instructions contained in the authorization, and indicates whether the report submitted marks the completion of the investigation or is merely a progress report.

"In accordance with your request in your letter of April 25, we have completed the survey of the routines and office methods in effect in your Petersburg office and are submitting herewith a report of our finding. We have given special emphasis to apportioning cost of service to the individuals or companies directly benefited, as you requested."

Review the Case.—Particularly in reports going to a wide group of readers such as the stockholders of a large corporation, a brief general review of the history of the problem or business is frequently desirable so as to make the report proper more intelligible, to make certain points stand out more clearly, or to arouse interest.

"We operated throughout last year under unusually favorable conditions, among which were a more uniform output from our mills than we have ever enjoyed before, a wheat crop of fine milling quality, and a fairly steady price for grain."

In a report covering work that has extended over several years, a brief review of the case may be to the point in the letter of transmittal, even though it is treated at length in the introduction of the body of the report.

Indicate the Purpose.—The letter of transmittal may set forth the reason for the report in a way to attract the attention of the reader. By showing a predicament or necessity for a change, the reason for the report may be made more effective.

“The sense of the meeting which you called on April 25, to discuss the order situation in the construction department was: that it is desirable to design more uniform order routines and forms for the department and, if possible, to replace the numerous different kind of departmental orders now used for construction and maintenance work by a universal construction department form.”

Indicate Scope.—In long, formal reports, most of the points covered in the letter of transmittal have been given considerable space in the body of the report. Consequently, they are only mentioned in the letter to show outstanding points. In the semi-formal or personal report, in which the statement of scope requires little space, the letter of transmittal is often all that is necessary.

Reference to the scope of the report indicates the field covered which prevents the reader from expecting too much, and enables him to weigh facts in regard to their true value.

“Nothing is said in our report with regard to methods of financing because it is our understanding that such questions were not to be included in this survey.”

“Garages were not visited because their business has obviously grown as a direct result of the automobile.”

“We present herewith reports showing the results and status of the extra-incentive wage plan on the Billing Division of Districts ‘X’ and ‘Y’ for the month of August, 1927.”

Show Limitations.—A report is frequently prepared under certain definite limitations, such as amount of money available for the research, insufficient time, limitations imposed by legal franchise, etc. In fairness to the report, these limitations should be set forth, sometimes in the letter of transmittal if the report is short. Knowing the limitations, the reader will not overvalue data.

The effect of the limitations upon the report usually accompanies the explanation. The length of time that facts in the report will hold good is also material for this section.

This would include difficulties encountered in securing data or performing the work. Unusual difficulty with ground structure, handicapping the construction of a bridge, might be mentioned here.

"No interviews are included covering the business of grain elevators, and no interviews are reported with restaurant keepers."

Point to Objectives.—The letter of transmittal may show expressly how far the report goes and what it means to accomplish. These objectives may arouse the interest of a prospective reader. To the person who will read the report anyway, they indicate the line of research followed and prepare his mind for it before reading.

Give References and Sources.—Reference to other reports or correspondence may be made in detail or in acknowledgment in the letter of transmittal, especially when few in number, and there is no bibliography attached. Reference to certain ones may be made to show the difference in objectives with the present report.

Reference to correspondence may be necessary, as, for instance, when several letters were originally exchanged to clear up matters of authorization, details of the investigation, etc.

Sources of material that should be mentioned, or to serve as a matter of record, may be placed in the letter of transmittal when the number is so small that no bibliography is to be prepared, or when it is of such outstanding importance as to be useful in attracting favorable attention.

Reasons for Choosing Material.—Reasons for certain selection or omission of material may be put in the letter of transmittal. This may help to keep relatively minor material out of the body of the report. It may emphasize excellent selection, or it may add force to the report by showing the discretion shown in certain omissions.

"As a basis from which to work, I have used the Fire Ordinances of the city of Chicago for the reason that some of the most modern theaters in the country are located in that city."

"I have omitted construction costs, because I am of the opinion that you have already made plans for this phase of the problem. I might say in this connection, however, that there are no factors

that would cause costs to vary in this town from that of others of the same size."

Summary of Message.—When accompanying a report which does not warrant a synopsis, the letter of transmittal may contain a brief summary of the outstanding features. Coming from a recognized authority, this letter will often give the executive all he needs to know in order to make a decision. Details can be perused later or passed to a subordinate.

"This report has been prepared in three parts as follows:

Part I—Stores Organization

Part II—Methods and Records

Part III—Conditions of Storerooms and Stores Stock

(This section of a letter of transmittal was followed by individual paragraphs telling briefly the contents of each section.)

This may also include a summary of what has been done, giving a brief description of outstanding accomplishments, or advantages made possible.

"These suggestions if adopted will have the following advantages:

1. That it will improve the appearance of the office.
2. That it will facilitate securing rate information and permit the handling of a greater volume of work without an increase in personnel.
3. That it will eliminate handling a number of small claims.
4. That it will relieve the assistant traffic manager of considerable detail work."

Specific Reference to Certain Sections.—Special sections of the report may be selected for specific mention in the letter of transmittal for the purpose of emphasis or clarity. Sometimes the writer will want to make reference to his classification of answers to a questionnaire, possibly with a detailed analysis of one certain class. Or a few outstanding points of the balance sheet may be cited for the purpose of comment and comparison, so as to give the stockholders the right perspective before reading the report.

When certain parts of a report look bad in cold figures, yet there is a ready explanation, this feature may be mentioned in the letter of transmittal, particularly in financial reports in

which there is little discussion. Taken from a report in a bad year, we read:

"Failure to make a larger profit this year has been due principally to inability to merchandise our stocks or provisions at a profit. A slump in foreign demand, which continued throughout most of the year, made it necessary to sell unusually heavy stocks on the home market. This, combined with high grain prices and inventory costs, created a difficult situation, but one which is not likely to recur in the very near future."

"Percentage cost of sales for 1927 was 1.2% more on volume, and administration and sales expenses 1.1% more, resulting in a decrease in net profit percentage of 2.3% on gross revenue.

"Unusual expense was necessarily incurred on account of the moving of the Manitou, Ore., plant operations to the Grand Rapids, Calif., plant, also incident to rearranging of manufacturing operations at the latter plant in the occupancy of the newly completed buildings, all of which temporarily contributed to an increased cost of manufacture."

Contain Conclusions and Recommendations.—Important conclusions or recommendations may be briefly reviewed in the letter of transmittal unless the letter is replacing the synopsis, in which case they may be set forth in more detail. Many letters of transmittal are built around the outstanding conclusions or recommendations, tending to show the advisability of a proposal, playing up certain angles as strong points or as criticism. Using conclusions or recommendations as the central point in a letter tends to give it force and unity, and is a favorite method when the letter is not employed for material omitted from the body of the report.

If it is important for the reader to know that the conclusions are valuable only when governed by certain principles, this may be emphasized by putting it in the letter of transmittal in addition to its regular handling in the text. Sometimes the writer will employ the letter of transmittal to show the significance of the results, what has been done, and what remains to be done.

Comments Aside from the Report.—By adhering closely to the strict phraseology of the commission, the report writer may submit work that technically covers the ground laid out but lacks a great deal in being of the most possible service to the reader. In such fields as accounting, the tendency is more and more to accom-

pany the report with advice that will aid the client. In general business reports, in which the investigator is given considerably more leeway, the outline of procedure is usually merely indicated, and the client permits, in fact expects, the worker to operate within considerable latitude to show him cause and effect.

Sometimes this "going afield" requires a special section in the report, while at other times it may be covered in the letter of transmittal.

"While the purpose of our survey relates particularly to the routines and methods used, we believe that it is desirable to express our opinion as to the "general atmosphere" of the organization as well as to the advisability of continuing the present service activities."

Character of the Staff.—Reference to certain members of the staff, usually of outstanding note, may be included in the letter of transmittal, thus giving them recognition, showing the reader the position of each, and perhaps adding prestige to the report. It may be of importance to show how widely distributed over the country the investigators have been, or their position as authorities.

Acknowledgment and Appreciation.—Frequently an investigator has received so much or such unusual assistance from some person or persons that he desires to make acknowledgment in his report in a semi-formal manner, either as a matter of courtesy or because the nature of the acknowledgment will not quite fit into the body of the report. Or a note of appreciation for the work of certain assistants may be desirable.

Acknowledgments should be made in a quiet, dignified, non-effusive manner. Even though a writer feels enthusiastic in his attitude toward someone while in the heat of the work, if he puts this effusiveness upon paper, the strange reader will not appreciate it and will probably doubt its sincerity. It may even look different to the writer within a short time—out of proportion to the real value.

A cordial, dignified acknowledgment—

"We suggested this line of thought to Mr. E. W. Smith, chairman and president, and he very kindly consented to write us an open letter, with permission to incorporate it in this report, and we are sure that our readers will find this important letter on page 86 of Part II, of particular interest.

"To Mr. E. W. Smith and his able and efficient staff we are under many obligations for their great help and most courteous cooperation in connection with the preparation of this study."

"Full acknowledgment is hereby made to Mr. G. S. Bates, Associate Professor of Marketing, for the manuscript and through him to the various dealers, to the other members of the marketing staff, and to students who have been contributors of information."

Acknowledgment and thanks should be made with no favoritism, but with full credit where due. Sometimes this acknowledgment is of such importance that a special page is given over to it. Fairness in giving credit will often influence the tone of the entire report.

Call Attention to Other Things.—The letter of transmittal may call attention to another report to follow, or to copies of different things having a bearing on it. The advantages to accrue to a town through the construction of a certain bridge may point the way to another report on an allied subject.

"This report will be followed immediately under separate cover by suggested procedures for the Purchasing and Accounting departments, which we believe are needed to give effect to the improvements that are proposed.

"We shall be glad to discuss with you any of our findings or recommendations at your convenience."

The suggested possibilities for the contents of the letter of transmittal, just discussed, all permit a certain amount of the personality of the writer. In strictly formal, very technical, and in some types of routine inter-organization reports, the transmittal is accomplished by a set form which usually constitutes the first page of the report.

Title	
Report for	Position
Report from	Position
	Date
Countersigned or	Date
Revised by	Date
Conclusions (brief)	
.....	
Recommendations (brief)	
.....	
	File
Department number	

Qualities of the Letter of Transmittal

The most outstanding qualities of the letter of transmittal are conciseness and straightforwardness. Conciseness and good choice of diction characterizes this selection from the report of a consulting engineer:

"After allowing a liberal depreciation throughout and a very heavy depreciation on the less efficient units on account of obsolescence, I have arrived at the following valuation of the properties being acquired by the _____ corporation."

Salesmanship, persuasiveness, and originality are characteristic of many letters, especially when the investigator knows that the client respects his judgment, expects him to draw his conclusions carefully, and then present them in convincing fashion. But at no time is the letter of transmittal or the report proper so presented that the true value of the data is not shown.

"We believe that if the plan is placed in operation and effectively conducted, it will be of great value in improving the already good management in the companies and in providing for future executives in the organizations."

Like any good business letter, the impression made by the letter of transmittal depends to a large extent on the general tone. A natural, dignified, conversational tone is best in all but the most formal or technical reports. The naturalness of such a tone lends quiet dignity and impressiveness to the entire letter.

"May I call particular attention to those sections that deal with the transportation facilities and the labor supply? The proposition made by the B. & X. railroad seems to be a good one.

"Although it has taken slightly longer than was estimated as the time necessary to prepare this report, it was necessary to wait for an offer from the railroad."

An exaggerated tone of the following type makes the reader overzealously scrutinize every point in the report because he recognizes the prejudiced and partial position of the writer:

"Come to Lima and enjoy the highest success in manufacturing shoes. The high quality of the people will be reflected in the work that they turn out. The people of Lima are energetic and industrious, ready and willing to give their best for their employer.

"The Lima Chamber of Commerce is extremely happy to present this report for your consideration."

Another characteristic of the letter of transmittal is that, with the exception of the identification element, it does not have a definite introduction as does a business letter. Neither does it have an ending that attempts to secure action, with the possible exception of a brief statement of recommendations which, however, are not strongly urged.

A letter of transmittal may be said to have a central selling point, however, like a good business letter. This central point is what the reader wants to know, what is of most absorbing interest to him in the body of the report, or what he wants to know that does not appear in the report, but which has a direct bearing on it. Persuasiveness is largely secured by building the letter around one or two significant facts, the better to gain acceptance for those facts.

Letters that are dictated, unless handled by a master, are frequently lacking in organization and consequently in those qualities of salesmanship that are needed to enable the transmittal to make the proper impression. Routinism causes such letters to lack adaptation.

Form

The form of the letter of transmittal is usually like that of any business letter unless it is being used as a synopsis. In that case, side or center headings are employed to break up the solid reading matter, and to make the main heads stand out more clearly.

Letter of Transmittal¹

Office of the Committee,
Chicago, Nov. 22, 1915.

MR. CHARLES L. DEERING, *President*,
The Chicago Association of Commerce.

SIR:

Your Committee of Investigation on Smoke Abatement and Electrification of Railway Terminals in Chicago has the honor of herewith presenting its final report.

Since its appointment in March, 1911, your committee has given close attention to the subject in hand and has had the benefit of the advice and researches of an able staff of experts.

¹ For other examples of letters of transmittal, see Chapter II.

Having had at its command ample resources and the advice and assistance of such expert counsel as it chose to employ, the committee feels justified in hoping that its report will be of some value in the solution of a difficult civic problem not only in Chicago but elsewhere.

The committee has had no difficulty in obtaining the necessary data from the railroads directly interested and is under many obligations to them and to other organizations and individuals in this country and abroad for valuable assistance and advice.

While the committee's labors have consumed over four years in time, it feels that the importance of the subject matter of the investigation and the effect in our own city, and in other terminal cities, required it to proceed cautiously and to form conclusions only after thorough investigation and careful consideration.

By Order of the Committee,
JESSE HOLDOM, *Chairman.*

Example of a memorandum-letter type of transmittal of a semi-informal nature:

DEAR SIR:

I recently have been giving some thought to what we have accomplished in our budgetary program and what our program should be for the future. I am taking the liberty of submitting for your consideration certain thoughts which I have in reference to these problems.

Although you may not agree with any suggestion in its entirety, I trust that they will serve as a sufficient challenge to your thinking on this problem that they may aid you in arriving at a decision concerning the development you desire to make in your budgetary program.

I shall, of course, be glad to discuss any of these suggestions with you in more detail at your convenience. I believe that the budgetary program has accomplished a very considerable amount of good for your company. I also believe the preparation and use of budgets has led many of your executives to think about these problems in a more careful and comprehensive manner than they otherwise would. As a consequence I believe the byproducts of the budgetary work have been as important as the direct benefits for which they were installed.

Yours truly,

An example of a letter of transmittal accompanying a private report made to the president of a company. This is a synopsis type of letter.

ST. LOUIS TRANSIT CORPORATION

Rapid Transit Security 6 per cent S. F. Gold Bonds Series "A"

Due July 1, 1968

Gentlemen: ²

In comparison with bonds of similar security, we believe that the above issue presents exceptional value at the present market to yield over 6 per cent. A study of the facts leads us to believe that this bond is materially out of line, and on account of the very strong security, is unquestionably worth intrinsically its callable price of 105. The principal points are as follows:

- (1) A well seasoned security, listed on the New York Stock Exchange, well regarded and already possessing broad marketability.
- (2) Each \$5,000 par value of these bonds is secured by not less than \$6,000 in mortgage bonds of the New Jersey Rapid Transit Corporation and/or Petersburg Power Plant Corporation.
- (3) A cumulative sinking fund is sufficient to retire before maturity the entire present issue of bonds by purchase in the market up to 105 or by call for redemption at that price.
- (4) Earnings applicable to pledged collateral are over *twice* interest and 1.85 times combined interest and sinking fund requirements on S-L-T 6s, which earnings are being accomplished on a 5c fare.
- (5) The City of has over \$170,000,000 invested in the rapid transit lines operated by the New Jersey Rapid Transit Corporation, the service on which is junior to an amount substantially in excess of the service on the New Jersey Rapid Transit bonds.

In view of the strong mortgage security and the adequate protective provisions for future issues (in case of additional construction), and the already established and steadily increasing earning power on a 5c fare, we believe these bonds are a very attractive purchase at the present market under par, both from the standpoint of income as well as possibilities of appreciation.

Very truly yours,

SMITH, BROOKS & Co.

Investment Department.

² Names have been changed in this letter.

Replacing the letter of transmittal is sometimes found the official certification of the company making the investigation. This may be formal—almost legal in tone and phraseology when introduced in a perfunctory manner—or it may be enlarged to cover many of the points of the regular letter of transmittal.

Examples of certification:

The following survey represents the findings of the J. R. Smith Company, a neutral engineering firm, which made an impartial investigation and compiled their report in collaboration with the owners.

This survey provides definite, reliable, and unbiased performance data on which the selection of materials and equipment may be safely based. It has been approved in writing by a responsible executive in the owner's firm.

The J. R. Smith Company hereby certifies that the facts and figures are correct to the best of its knowledge and belief.

CHAPTER XIV

WRITING THE REPORT (Continued)

I. Letter of Approval—II. Table of Contents—III. Table of Charts and Illustrations—IV. Foreword, Preface, and Introduction—V. Synopsis: A. Purpose; B. Various Names; C. When Used; D. Content; E. Length; F. Placement—VI. Body of the Report—VII. Main Divisions of the Body—VIII. Introduction: A. Suggestive List of Contents; B. Abstract; C. Authorization; D. Title; E. Purpose; F. Object; G. Scope; H. Origin and History; I. Location; J. Methods, Materials and Apparatus; K. Explanation of How Conclusions were Reached; L. Administration; M. Definition of Terms; N. Copy of Questionnaire; O. General Introductory Material.

LETTER OF APPROVAL

When an executive is responsible for a report, the work of which has actually been done by a subordinate, or in a strictly formal report of a public nature, the report is given official sanction in the form of being countersigned, revised, or accompanied by a letter of approval. In the first case, which is common in routine work, a space is left on the cover or title page for the executive in charge to sign with the man who did the work. If any revision is made, it may be indicated before signing.

If the executive wishes to add some general comments in his transmittal, he may do so in a complete letter of approval. This letter, however, is usually of a formal nature as shown in the example in Chapter II.

Routine approval usually takes something of this form:

Abating the Mosquito Nuisance

Report for	A. R. Sims, President	
Report by	Alfred E. Richey Engineering Division	Mar. 24, 1928
Revised by or	J. R. Long, Gen. Mgr.	Mar. 30, 1928
Approved by		

Or it may be incorporated in a brief synopsis as—

Investigation Case No. 274

SUBJECT: Leather Goods in the United States.

OBJECT: 1. To make a brief general survey of conditions affecting the leather industry in the United States, and
2. To determine the truth or falsity of a rumor that the English and German manufacturers of leather goods are trying to form a combination to control the price of the products imported into the United States.

REQUESTED BY: Mr. A. M. Jackson

Compiled by C. W. SMITH

Approved
Purchase Engineer

Noted By
Asst. General Purchasing Agent
(P. M. M.)

.....
Division Buyer
(G. E. B.)

Routed to:

L. L. Bodach
G. R. Cook
W. H. Stout
G. Gore

Copies to:

H. W. Leonard
R. W. Mayer (2 copies)
T. J. Schlitt
R. W. McMichael.

TABLE OF CONTENTS

Reports that are more than three or four pages in length, or that are subdivided in more than three or four divisions, should have a table of contents or at least a list of the main heads covered. In short reports that present only a brief discussion of a few heads, these should be set out on a page although it is not necessary to give page numbers when the total is only three or four. For example:

Investigation of Marketing of Honey

- I. Summary of preliminary investigation
- II. How Honey is Marketed in Louisville
 - A. Manufacturers
 - B. Retail markets
 - C. Retail prices
 - D. Quantity.

For the long report, however, the table of contents should be detailed so that the reader can get an idea of the entire contents and so that he may be able to turn to any one section with the least possible inconvenience. This last is particularly useful when the report is filed and the reader wishes to refer back to it.

The table of contents is prepared after the report has been completed so that the page numbers are available. It follows the general form of the last outline prepared before writing, making any changes that accompanies the actual writing. Different sub-heads should be arranged according to their value in relation to main heads, the latter being subdivided three or four times in elaborate reports. A uniform system of numbering should be used so that the reader will know the relative importance of each head by the type of designation.

Placing the contents of the report in this outline form enables the reader to see at a glance the logical development of the entire theme.

Care should be taken to display the material properly so that this logical development may be easily seen. Also, the more angles from which the subject appears to be viewed, the more likely is the report to be of value or apparent value to the reader.

Many reports carry a table of contents with no designations for the different heads. However, the more readable ones carry designations, the most commonly accepted form being Roman numerals for the main heads, capital letters for the first sub-head, Arabic for the next subhead, and small letters for the next, as illustrated.

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TABLE OF CHARTS AND ILLUSTRATIONS

When a report contains a large number of charts and illustrations, a special table of these is made up following the table of contents. This table merely gives the caption for each chart or figure, and the page number. This serves the purpose of enabling a reader who is particularly interested in this feature or who has read the report and remembered one special chart, to turn back to the proper place with a minimum of effort.

These tables may have appropriate heads as, Table of Charts, Table of Illustrations, Table of Computations.

The contents should usually be arranged consecutively as they appear in the report, but occasionally there is reason to group different charts and illustrations under various heads, regardless of how they may be distributed.

FOREWORD, PREFACE, AND INTRODUCTION

There is really very little difference observed in the use of the terms foreword, preface, and introduction as applied to that material used in place of a letter of transmittal in many general reports. When the writer knows who his readers will be, he transmits his report with a letter as discussed in Chapter XIII. In a public report, however, which will be read by anyone and everyone, the transmitting usually takes the more formal, book-style of foreword or preface.

For a detailed discussion of possible contents, reread section on the letter of transmittal. A good example of the use of both the foreword and preface in the same report will be found in Chapter II.

Like the letter of transmittal, the foreword is the author's opportunity to say a few words in semi-confidence to the reader. In it, the writer should briefly state the subject matter, possibly the need or reason for the report, outstanding features of the investigation, novel methods pursued, and may include acknowledgment for aid received or any of the other features of a letter of transmittal that is not too personal in nature or tone. The foreword or preface may or may not be signed.

The foreword or preface can be as short as 75 to 100 words, and usually should not exceed 500 words. It should be just long

enough to complete the mental processes started by reading the title and permit the mind to get settled for concentration.

Example of foreword, containing acknowledgment:

Foreword

Certain important holders of Big X stock, clients of this house, came to the conclusion, after a trip through the country sometime ago, that competition between this road and the Western Central was a serious and increasing menace to the future prosperity of the Big X. They were so confirmed in this belief that they had planned to liquidate their holdings of its securities, but withheld final judgment pending our study of the situation.

For the benefit of these clients and for others, who undoubtedly shared their opinion, an extensive review of all available statistical data was undertaken. The sources of information used were principally the elaborate records of the Bureau of Railroad Statistics. In order to be sure of the accuracy of our statistical data, arrangements were made to have all our figures checked by the accounting department of the Big X. The statistical survey was supplemented by an inspection trip which was arranged through the courtesy of Mr. Garvin.

While we hope that our clients will value the conclusions that we have drawn from this careful study of the Big X, we knew that they would particularly value a brief survey of the present situation and an estimate of the future outlook by the chief spokesman of the Big X, himself. We suggested this line of thought to Mr. A. E. Garvin, Chairman and President, and he very kindly consented to write us an open letter, with permission to incorporate it in this report. Readers will find this letter on page 98.

To Mr. Garvin and his efficient staff we are under many obligations for their help and courteous cooperation.

CARR, HUMPHREY & Co.

SYNOPSIS

Purpose

The synopsis of a report, which immediately precedes the body, is a concise and condensed presentation of the outstanding features of the report so as to make the reading easier and more intelligible, and to save the time of the executive. Upon considering a report, the executive is primarily interested in "What's it about?" and "What point does it make?"

In business research, the answer to a question of what to do is often the main thing. The executive doesn't always examine all the data in this type of report if he has confidence in the investigator. A synopsis gives him a quick and thorough glance at the results as a whole, certain conditions and factors of im-

portance and their influence on results, any course of action suggested, and the most outstanding reasons for the suggestion.

On the other hand, if the executive desires to read the detailed report carefully, the synopsis gives him a definite idea of what the course and method of development has been and thus enables him to read and comprehend more quickly.

Another purpose of the synopsis may be said to be the widening of men's range of reading. An overwhelming percentage of readers will always or usually read the synopsis first. Whether the reader continues into the body of the report, finds that he is not interested, or has secured enough from the synopsis to act or to "keep him up to date" on the subject, the synopsis has well served its purpose. A careful synopsis, done by a competent man, will save the time of each reader. Well prepared synopses are a great aid to the librarian and to the bibliographer in properly filing and organizing material, especially when the title is not clear.

Various Names

Like the various names for the transmitting element, the synopsis of a report is known under different titles. Summary, epitome, abstract, and introduction are perhaps the most commonly used. The terms are synonymous so far as practical usage is concerned. The term "abstract" is more commonly used in scientific reports than the others, although there is little difference in its purpose with the possible exception that the very nature of the scientific report makes it seem more terse and specialized.

Each is a synopsis of certain high points of the report, selected and arranged with reference to adaptation to the nature of the subject matter or the needs of the reader.

When Used

Some form of synopsis is used in practically every type of report. In the case of a short report—two or three pages in length—the synopsis may be a paragraph at the beginning.

In a slightly longer report, the substance of the synopsis may be placed in the letter of transmittal, this letter serving as a synopsis of the report as a whole. This placement is possible when it does not make the letter of transmittal too long, in proportion to the rest of the report.

Sometimes sections labelled preface, foreword, etc., really absorb the function of the synopsis. The nature of a synopsis incorporated in a preface is naturally more or less perfunctory and limited.

Even though a long report has brief summaries throughout, either preceding or following sections, the reader usually prefers these to be collected and presented together, if for no other reason than quick reference later.

Scientific reports are usually preceded by a synopsis or abstract following a set style familiar to scientific readers.

Content

The synopsis contains the essence of the report, condensing all reasons, conclusions, and recommendations as much as possible and omitting those of a minor nature. When the volume of data is large and the conclusions certain and obvious, the synopsis may be short and concise with most details omitted, but when the volume is not large, or the data are not conclusive, the synopsis may have to be longer, because it is necessary to qualify reasons, conclusions, and recommendations.

The routine arrangement of the synopsis is to set forth, first, basic material necessary to lead up to the conclusions and recommendations, but modern business research is adopting to a great extent the style of stating the conclusions and recommendations first, with a few concise reasons necessary for substantiation later.

Aside from the conclusions and recommendations with the evidence necessary to carry conviction, the synopsis may contain other material. It may describe the contents completely and precisely so that the reader can quickly see the outstanding features of the work. If the amount of time spent or authorities consulted has an important bearing on the conclusions, it may have a place in the synopsis. Method of procedure is frequently of such importance as to warrant a brief description.

All the possible contents discussed under the letter of transmittal may be used in the synopsis, although not repeated in the latter if used in the former, unless for special emphasis. In addition, technical features of the data as presented in the report, may appear in the synopsis in condensed form.

The synopsis should summarize methods, conclusions, and theories so as to be understandable to readers not specialists, when the writer is sure that he will have different classes of readers. When there are a large number of major and minor conclusions, usually only the major ones belong in the synopsis.

In a strictly business report that will influence the executive in taking some immediate action, the accuracy of results outlined will be of interest, such as the per cent range of error. A comparison of results with old methods may be the answer sought by the officials. An analysis of the final situation—completeness, effect on design, costs, production, proposed methods and results, etc.,—is the thing that the executive wants as soon as the investigation is completed. If he gets this in the synopsis, he can act immediately or read the complete report with quick understanding.

Length

The length of the synopsis varies with the type of report, the type of data being handled, the volume of data, the conclusiveness of the data, and the purpose for which the report is to be used.

Many technical report synopses, including the new methods and apparatus used, can be condensed into a few sentences. The type of data handled of a technical or mathematical nature will lend itself to shorter length than the average market survey. When the volume of data is large, and the question is being approached from many angles, the synopsis of each development will add to the length. If the data are conclusive so that they will not require much qualifying, the length will be reduced.

When a report is prepared for publication or when it is to be submitted to a critical examination requiring detail and supporting evidence, the length will be reflected proportionately in the synopsis. An informational report submitted to readers who desire to read it completely and draw their own conclusions will require a shorter synopsis.

The length of the synopsis may be anything from a paragraph to twenty or thirty pages. The only rule that can be given is to make it as short and concise as the nature of the report will permit.

Placement

The synopsis immediately precedes the text of the report. A uniform style of presentation should be adopted if there are many reports of a similar nature to be written. It will facilitate reading and finding material for reference purposes.

In a synopsis of some length, each section should carry a title. If these sub-titles are set in the same way, either as side heads, center heads, or in italics, and follow the same arrangement, e.g., method, apparatus, etc., constant readers will be able to work with the report more rapidly.

Furthermore, these sub-titles furnish a descriptive index of what is in the report, as well as the synopsis, and in short reports may serve as an index, not giving page numbers. By glancing through these sub-titles, a reader can tell whether he wants to continue. They also may call attention to results not suspected from the title, which is useful in short reports without a table of contents.

For example, these sub-titles were found in the synopsis of a report on a chemical experiment. The main heads were in different size type than the subheads under them.

ATOMIC WEIGHT OF IODINE	
.....	
Pentoxide method	
.....	
Determination	
.....	
IODINE PENTOXIDE	
.....	
Preparation	
Purification	
Decomposition with heat	
PREPARATION OF PURE IODINE	
etc., etc., etc.	

Synopsis

Since the period beginning about 1870, there has sprung up in the industrial world of this country a class of publications which have come to be known as employee magazines. These journals have increased their effectiveness from year to year until today they perform a very important function in modern industrial life.

The aim is to foster co-operation and harmony among the employees of any plant, with a consequent increase in production, while at the same time securing the good will and loyalty of the men to the plant as a place in which to work.

The problems which arise in the conduct of such a paper do not differ widely from those of every day journalism. The interest of the employees must be the guiding light, however, or the work of the paper is doomed to failure. Problems must be discussed from their viewpoint in a mediating and conservative tone.

Where practicable, the conduct of the entire paper should be turned over to employees directly or to organizations of the men formed for their mutual benefit against accident, sickness, or similar purposes.

The departments found in the employee magazine do not depart widely from those found in almost any magazine today, but care should be taken to limit as much as possible the contents to occurrences of a purely local nature, or if the company includes a number of widely scattered branches, merely to matters concerning the company.

Routine matters such as financing, editing, and similar functions, depend to a large extent on the conditions within any plant. That is, the size of a plant will determine whether it be best to publish and distribute the paper free, or make a small charge for it. Other matters are determined similarly.

A synopsis preceeding a report on a bond issue¹

\$2,000,000

WOOD CLARK BUILDING

WOOD-CLARK BUILDING CORP.

S. E. Corner of Wood and Clark Streets

Kansas City

FIRST MORTGAGE LEASEHOLD 6½% SERIAL GOLD BONDS
(CLOSED MORTGAGE)

Dated March 15, 1927

Interest Coupons Payable

Due March 15, 1942

September 15 and March 15

Coupon bonds registerable as to principal. Denomination: \$1,000 and \$500 bonds in all maturities; \$100 bonds, in 1942 maturities only.

Callable at 102 and interest payment date upon 60 days' notice.

Interest is payable without deduction for Federal Income Tax

not in excess of 2%. The Mortgagor covenants to refund,

upon proper written application, the Pennsylvania 4

mills tax; the Connecticut 4 mills tax; the Mary-

land 4½ mills tax and the Massachusetts In-

come Tax not in excess of 6% to resi-

dents of said respective States.

Bonds and coupons payable at

the principal office of J. R.

Jones and Company,

Chicago, Illinois.

¹ All names have been changed.

TRUSTEE: NEWARK TITLE AND TRUST COMPANY OF
NEWARK, ILLINOIS

TOTAL ISSUE:	\$2,000,000.00	Dated:	March 15, 1927
Security:	Direct closed first mortgage on leasehold estate and building.	INTEREST COUPONS:	Payable semi-annually on September 15 and March 15.
LOCATION:	South East Corner Wood and Clark Streets, Kansas City.	CALLABLE:	At 102 and interest.
TERM OF LOAN:	4 to 15 years.	INCOME TAX:	Normal Federal Income Tax of State Income 2% and other Taxes are paid by the Borrower.
BORROWER:	Humphrey Building Corp.		

APPRAISERS: E. J. RICHEY & Co., Chicago

D. L. ALDERSON, Chicago.

INCOME APPRAISAL: S. M. TRELAND & Co.

Synopsis

This investigation, made for the purpose of ascertaining the policy of advertising firms relative to the proportion of picture-display to printed copy used in present-day magazine advertisements, has included a search into the advertisements of forty-two magazines. Trade and professional journals, women's magazines, motion picture magazines, literary periodicals, class publications, humorous magazines, and magazines of wide and general circulation are the classes of media taken as bases for this research. An endeavor was made to choose those publications which are popular as media today in order that the results might be as accurate as possible. Undoubtedly, there are many desirable media omitted from the investigation, but it is believed that enough representative magazines have been examined to deduce very reasonable conclusions.

The method of accomplishing the investigation allows of only approximate results because it was necessary to use a more visual estimation of the size of the picture in any advertisement. Every "ad" of any consequence alone and each group of small advertisements throughout each magazine had a figure noted down for it which designated the proportion of picture-size to printed copy and picture-space together. After the magazine was completely examined, an average of all these figures was computed and reduced to a percentage basis, from which figure could be calculated the per cent of printed matter to picture display plus printed matter, or the per cent of space the copy occupied counting the entire "ad" as one-hun-

dred per cent. From these two percentages for each magazine was calculated the definite proportion of picture-display to printed copy.

An average of the percentages of the proportions of a whole class of magazines could not be made for an average of unweighted averages is incorrect. However, a rational mean will be sufficient to indicate results for the various classes of magazines.

The results from this investigation are most reasonable from the standpoint of scientific advertising. More picture display is used to appeal to those who do not care for facts or arguments in the "ads" they read; more pictures are used in class magazines and women's magazines for the appeal is necessarily made largely through coloring and fine art work and photo-engraving. In the professional journals, pictures play an exceedingly small part except where the journal is used to carry advertisements of firms in that branch of industry. For instance, "Beautiful" advertisements have the picture-display in ratio of 1 to 1.006 to printed-copy; "Women's Home," 1 to 1.13; "Gazette," 1 to 1.55; "Review," 1 to 3.01; "Talk," 1 to 1.82; "Pictures," 1 to 1.43; and "Workers," 1 to 7. Those figures show the variation. "Beautiful" advertisements, and the advertisements of that entire class of magazines investigated are made up of about half pictures and half printed copy. "Workers" advertisements are but one-seventh pictures. Professional men and those who are presumed to be the busy persons of today are the ones who have to read printed matter in advertisements. They wish to know facts. Persons of the leisure class are appealed to by advertisements made up of from one-fourth to one-half pictures so that while reading their magazines, they are reached by the advertisements at their first glance with little or no effort to them.

The proportions of picture-display to copy used in these various magazines are significant from other standpoints than advertising, for they betray evident characteristics of the type of people who read the different classes of magazines.

This contains only a few general conclusions and no specific recommendations. However, it suggests certain findings that would tempt the reader to continue.

Example of a synopsis indicating general conclusions reached, designed to get the reader to continue:

"In making this investigation of the experience of companies in increasing and decreasing prices, all types of firms have been included—style goods, utility, specialties, jobbers, etc.

"The experience of these firms has been condensed and summarized. The result shows that under certain conditions an increased volume will result from a decrease in price, while in other cases, a decline in price may mean a decrease in sales. Increasing price has raised the volume in some commodities, while in others the price seems to have little effect.

"Detailed information as to when and under what conditions prices are most likely to influence directly sales volume is presented. Facts required in establishing a price policy are summarized, and conditions under which decreasing prices are likely to affect sales adversely are summarized."

BODY OF THE REPORT

Although the letter of transmittal, table of contents, synopsis, etc., have been discussed first because they are found in that order in the finished report, as a matter of fact, the text or body of the report is the first thing prepared after the formulation and interpretation of the data. Writing the body of the report is merely developing the outline by the presentation of organized data.

Like preparing the outline, writing the report is not the result of a single operation. Usually the first draft little resembles the final form, having been revised and changed through considerable work, or shown to various authorities in the organization who are not slow to check details and make alterations.

Although somewhat aside from the nature of the written report, it is well to call attention to the fact that some executives want an oral report when rough conclusions are reached and before the results are written. The wishes of the executive can usually be discovered through such an oral report, and the final form can be better adapted to what he needs.

MAIN DIVISIONS OF THE BODY

Because of the wide variance in subject matter, nothing but general divisions can arbitrarily be laid down for writing the report. In the rather long, detailed analytical reports in which all data are included from the history to recommendations for the future, and presented in logical order, the material falls into three general classifications: introduction, text, conclusion and recommendations, presented in this order.

When the material is presented in a psychological arrangement, the contents remain the same, but the order is somewhat changed. The first paragraphs or sections are given over to the findings of fact or conclusions. These are followed by the recommendations, when included, presented in brief form. Then follows the text of the report, giving detailed data.

The reason for this second arrangement is to enable the executive to grasp the main ideas quickly, as already explained. But since the actual content is little different, the logical arrangement will be followed in this discussion of the writing of the body of the report.

INTRODUCTION

Aside from what preliminary information is given in the letter of transmittal (or preface) and the synopsis, the reader is given his background for the body of the report by means of the material placed in the introduction. The length of the introductory material varies in proportion to the amount of knowledge the reader has of the subject matter and his needs. In the case of a financial report to stockholders, the history of the company is usually superfluous unless a few points are selected for the sake of comparison. On the other hand, if the subject matter is complicated as in the case of a report on the coal industry, or if a report is being made of an experiment the general nature of which is unfamiliar to the readers, the history of the case and other introductory material necessary to get the reader in the proper mental attitude to grasp the data will as a result be more detailed.

The following list of contents for the introduction are given only as *possible* ones, and is not intended to be comprehensive or to imply that everything listed must be included in every good report. The nature of some reports will not demand the use of more than one or two of the following heads in order to make things perfectly clear to the prospective reader.

Suggestive List of Contents

Title, abstract, authorization, purpose, object, history, need, scope, location, method, apparatus, materials, design, administration, estimates, acknowledgments, definitions, general remarks.

Abstract

Reports containing a synopsis will dispense with an abstract, which is merely a synopsis on a smaller scale. While the synopsis will give the executive a brief, concise, but thorough idea of the entire outstanding results of the investigation, the abstract is designed merely to give the reader an idea of what has been done and how, but does not attempt to give the conclusions, although it may refer to them generally. The abstract is used on the type of report in which the reader does not expect to get many high points without reading, usually scientific, but wants to know what the report is about so that he will not waste time

reading something in which he has no definite interest. It also aids in filing.

Abstract

"The characteristics which determine the value of the radiator in discharging the functions are considered in detail. Measurements of air flow through the core, of head resistance, of cooling power, and of geometrical characteristics are described and an exposition given of the relations between these and the conditions under which a radiator operates and its characteristics of form and construction. The work was based on special laboratory investigations, including laboratory tests of over 100 types of radiator core. A detailed record of the performance of these cores is included in the paper."²

Authorization

When mention of the authorization for the report is brief and is not made in the letter of transmittal, in a special letter of authorization, or in the preface, brief reference to it may be made at the beginning of the introductory material. This origin of the commission is necessary as a matter of record for all reports that are to be filed; if the report is the result of a legislative act, the section pertaining to the authorization may be inserted here. Usually, however, if the reprint is very long, it is better to box it on one of the pages preceding the introduction.

Authorization

"Through the efforts of several of the engineering societies, the Bureau of Standards, and prominent manufacturers of screw thread products, a petition was presented to Congress requesting the appointment of a commission to investigate and promulgate standards of screw threads to be adopted by manufacturing plants under control of the Army and Navy and for adoption and use by the public.

(a) Commission authorized by Congress—As a result of this action the National Screw Thread Commission was authorized by the following act of Congress, approved July 18, 1918 (Public Act No. 201, H.R. 10852, 65th Cong.):

(follows the reprint)

(b) Life of commission extended by Congress—Prior to the expiration of the original term of six months for which the commission

² No. 211, Radiators for aircraft engines, Bureau of Standards, Washington, D. C.

was appointed, it became apparent that it would be impossible to complete in a satisfactory manner the work outlined by the commission. Extension of time was therefore asked by the commission and granted by Congress, etc.³

In short reports that do not contain a letter of transmittal, a sentence at the beginning of the report to the effect that "This report was authorized by Mr. J. K. Kennedy, Gen. Mgr., on May 3, 1928," may be sufficient.

Title

The phrasing of the title should not be ambiguous. If necessary to use words with several meanings, space should be given in the introduction to define them. The title should be limited—all that is necessary to make possible treatment in the time and space allotted. Titles requiring classification may be followed by the necessary explanation in a paragraph of smaller sized type.

Purpose

In many elaborate reports, the writer will differentiate between the purpose and object of the report. The *purpose* is the ultimate thing to be attained, and the *object* is the means of attaining it. To make clear the purpose of the report, it may be necessary to explain whether it is a comparison, description of new phenomenon, or development of a theory. What is its structure? When and where performed? Relation to previous work for proper orientation? Possible uses to be made or can be made of the report?

The purpose of a dentist's examination is to relieve all pain, but his immediate object is to find a tooth causing or contributing toward the trouble. Knowing the ultimate purpose of an investigation, the writer may desire to embody more in his report than the object seems to demand, such as a broad economic interpretation of figures and principles.

"The purpose of this report is to provide data upon which to base proposed advertising and direct mail work." The direct object of the report may be a magazine survey.

³ Report of the National Screw Thread Commission, Bureau of Standards, No. 61.

Object

The object of the report is stated as the problem for which an answer is sought. It is a statement of the specific things necessary to explain in order to accomplish the purpose of the report. It may include a statement of what was done and why: reason *why* of the investigation.

The conclusion and recommendations may follow the object in short reports.

“The object of this report is to show the relationship between homes that read,, magazines and that have telephones.”

Scope

The scope should show limitations or boundaries of the investigation. If it is a continuation of a former work, different location or condition may affect the scope.

It is frequently desirable to be beyond the physical or obvious scope of a report and include questions of administration, operation, finance, economics, relation to a community, etc. An applied business research report may be broadened to

1. Reduce costs of production
2. Reduce operating costs
3. Increase utility of the product
4. Increase its sales appeal
5. Produce new business
6. Determine technical information contributory to some other project.

If the investigation was conducted from a certain viewpoint, it should be stated.

The report will be as concise as possible consistent with recording the information within the scope of the report.

Making clear what the report is *not* going to do is often as important as what it is to do.

Origin and History

Presenting the origin and history of the question gives the background which helps guard against extraneous matter, shows the reasons for the investigation, and helps in finding issues.

Only those points in the history or origin that have a direct bearing should be included. Historical facts, particularly old ones, should be checked carefully to be sure they are not antiquated.

A *review of literature* on the subject (if any) may be desirable to get the background quickly and concisely before the reader.

Because many reports are more or less a continuance of previous documents, they frequently need some historical material to orient the reader.

Questions regarding the past such as the following will often arise in the reader's mind, and hence should be anticipated and answered:

What has given rise to the present question?

Occasions that have given rise to similar situations?

The importance that has been attached in the past?

Conflicting views held by people connected?

These questions will be recognized as some of those which demand consideration in the preliminary analysis.

A review of *present conditions* may be as necessary as past conditions in order to get the stage properly set for the presentation of facts. The number of banks in a town or state, population, water conditions, property cost, etc., often require careful elucidation before the reader is ready for the facts of the investigation.

To make the situation of a special company stand out clearly, it is sometimes desirable to present the history of the entire industry of which the company is a part. This may include past and present conditions of the industry as well as particular policies. A history of the company may cover the type of business, products sold, range of adaptability, capacity of plant, location, property owned, title, transportation facilities, seasonal aspects, incorporation, holdings of the company, patents, taxes, etc.

This logically leads to consideration of the need for the report as shown by past and present conditions. If the need or reason for the report is made clear, it may attract the attention of even a hostile reader. In such a case, a discussion of facts at first upon which the reader will agree is good psychology.

Location

If the location of the subject under discussion is of direct importance to the results, it should be explained. A gift shop that would prosper in Chicago would fail in a Wyoming town. Knowledge of an addition to the physical plant may be of direct importance to the report.

Methods, Materials, and Apparatus

Methods employed to attain the objectives may need to be explained. In a technical experiment, the method will permit duplication by others. In a market survey, the method will add to credulity.

Was a series of experiments performed? Were existing data collected? Or was a plan of calculation carried out? How and with what were the observed results compared? The description of the method employed enables the reader to follow through and in so doing convince himself. Deviations from announced methods should be made clear.

Materials used, particularly of an unknown or unusual nature, should be explained.

Drawings of apparatus, as well as discussion, should be included, designed to fit the prospective types of readers. This will enable the reader to replace the set-up, or judge for himself whether the correct apparatus was used.

Legends under drawings, pictures, etc., are better designated by key word or phrase than by numbers.

Explanation of How Conclusions Were Reached

In addition to setting forth facts, and figures, the introduction of the report should contain an explanation of how data were collected and how conclusions were reached.

"Calls were made on 28,930 homes in Neosho County and complete interviews were obtained from 28,203 or 97.5 per cent of these homes. From the remaining 2.5 per cent no interviews were obtained because of absence from home, serious illness in the home, or other reasons which could not be overcome by repeated attempts. It is interesting to note that the investigators met with complete refusals in only 21 homes.

"The investigator was required to ask to see the current issue, each worker being supplied each week with a statement which stated exactly how to interpret 'current issue.' If the current issue was not pro-

duced by the home, the investigator was required to make further inquiry and to record a personal judgment as to whether the current issue had been received in the home. The opinion was based on a rigid inquiry as to source and disposition of the magazines. If the investigator concluded that the current issue had not been received, he was required to record a personal judgment as to how many copies of the magazine had been received in the home during the past twelve months.

"The question was also asked as to what other publications were bought occasionally. This count is presented in the second column. The total of all homes which reported a magazine or farm publication, either as read or received regularly or bought occasionally, is given in the third column. In this column there is a grand total of 333 magazines or farm publications, and 22,646 or 80.3 per cent of the 28,203 homes at which interviews were obtained reported some magazine or farm publication as read or received or as bought occasionally."

Administration

When a report is made by a committee which has been in force for some time, the personnel and administration of the committee may warrant separate space either as a matter of history or to add emphasis to the report. This is sometimes placed in the introduction.

Definition of Terms

Before conducting the investigation the worker must carefully define his issues and terms. Before presenting his report to the reader, he should do the same thing.

Some of the problems of definition are:

What terms require definition?

How may definition be found?

How tested for clearness and accuracy?

Any term capable of two meanings so as to be confusing to the reader requires definition. Terms used that are new or uncommon to the reader must be explained.

"In this discussion, consideration of the subject is to be limited to operating statistics as an aid to supervision and direction. Operating statistics, as here considered, include, etc.——"

Defining terms may extend from the mere dictionary defini-

tion to an elaborate discussion explaining what is meant in the current report.

Terms may be defined by: etymology, analysis, exclusions, example, analogy, context, or by dictionary, discussion—general and technical—testimony, relation to other things, by authority, by negation, by concrete terms, examples, and derivations.

Definition should be in terms simpler than the original, or in terms familiar enough so the reader will have a clear conception of it.

Which method of definition will be the most valuable depends on the report. The matter should be considered before writing. Definitions may be tested for clearness and accuracy by self analysis and by submitting them to others who know or who do not know the subject matter.

Copy of Questionnaire

It is usually necessary to include in the introduction a copy of the questionnaire used in collecting material, as well as a copy of instructions that accompanied the questionnaire when it has any explanatory value. If the questionnaire has little direct connection, however, it may be relegated to the appendix.

General Introductory Material

State facts already known so that it will be unnecessary to repeat. This also helps to establish the starting point.

As in Lincoln's system of talking, it is frequently a strong point to admit what it is impossible to prove. This lends greater credence to the rest.

Effective references in the introduction will catch the attention of hostile readers and add prestige to the report.

Many reports of a market survey naturally will employ the journalists' 5 W's and tie up the lead with current interest when it fits. The report beginning with conclusions and recommendations is merely following this idea.

Give credit where credit is due.

Don't overplay the material in the introduction.

Material of undoubted nature, or conceded without inquiry, may be excluded.

CHAPTER XV

WRITING THE REPORT (Continued)

I. Text of the Report—II. Material to be Presented—III. Accuracy and Practicability—IV. Conviction in Presenting Evidence—V. Presenting Evidence: A. Hasty Generalization; B. Analogy; C. Fallacies—VI. From the Reader's Point of View—VII. Human Interest—VIII. General Interest—IX. Tone—X. Interpreting for the Reader—XI. Persuasion as an aid in Presentation—XII. Clearness and Completeness—XIII. Vividness Through Illustration—XIV. Necessity for Gaining Confidence—XV. Featuring Pertinent Material—XVI. Glittering Generalities—XVII. Summarizing Each Main Section—XVIII. Pictorial Presentation—XIX. Conclusions and Recommendations—XX. Appendix: A. Contents; B. Arrangement—XXI. Index: A. Types of Indexing; B. Cross References; C. Preparation of Index; D. Entry Word; E. Modification Words; F. Subhead; G. Style: H. Mechanics.

TEXT OF THE REPORT

In the introductory material, the writer presents all the background necessary for a quick understanding of the facts to be presented later. Material discussed under letter of transmittal may be elaborated and placed in the introduction.

In the text of the report, the writer is concerned with two things—the material to be presented on which conclusions are based, and the method by which to present it.

MATERIAL TO BE PRESENTED

The material is the result of the entire investigation and the interpretation of that data made by the investigator. Naturally if the data are insufficient, or the interpretation is wrong, the report will have little value.

The compiler will again check his data for *accuracy of facts*, *soundness of conclusions*, and *proof*. Even when giving the weak side of a question, the writer must observe accuracy of facts and present them impartially.

The writer will again consider whether the proof is adequate, and whether it came from original data. If the report is important and will be severely criticized, or if it will become historical, the writer may decide at this late time to go back and secure some of his data from the raw state. For other purposes, reprinted articles and data of such "second hand" nature may be adequate.

When the source of material is too bulky to use in the body of the report, it may be included in the appendix.

ACCURACY AND PRACTICABILITY

Though accurate data and real facts are essential when it comes to getting results, the manner of presentation is ordinarily as important as the facts themselves in causing conviction in the reader's mind.

Throughout the investigation, the worker has constantly selected and reselected the points at issue. He has even summarized the proof necessary. But in writing, he may feel the need for more clearly presenting major and minor issues than bare facts will do, and for other arrangements that will throw the emphasis in the proper places.

Analysis, reasoning, and evidence are the agencies of conviction. The proper presentation of these in writing the report will establish belief in the mind of the reader.

If the reader has that uncomfortable feeling that "this may be all right and yet it may not," he will not take a chance on being wrong.

CONVICTION IN PRESENTING EVIDENCE

Although Mill says "even the most cultivated portion of our species have not yet learned to abstain from drawing conclusions for which the evidence is insufficient," most reasoning, especially as applied to readers of reports, is based on evidence.

Evidence is needed to meet unsupported assertions, as a guard for every statement, and to correct imperfect analysis. "I think" and "it seems to me," unsupported by evidence, are useless unless the writer is an authority. The investigator sometimes lives with his material so long that he is likely to fall into such thoughtless forms of presentation when he starts to write.

In writing the report, it is well to make a final check on the

evidence—whether it is by authority—written or verbal; direct or circumstantial; original or hearsay; ordinary or expert; fact, assumption, or opinion. Has the evidence been selected to fit the space limit, and the natural limit of human patience and attention? Does the selection show fairness and broadness? Is the collection of evidence extensive enough to cover the subject? Too extensive?

In determining how to handle the evidence for presentation, it should be tested for probability, the general laws of human experience, prior facts, known specific instances, consistency with other evidence to be presented. Many times the writer will find his style ready made for him when he tests his evidence, adapts it to his reader, and finds that it meets a known need almost perfectly. When the proof is conclusive, the presentation will be entirely different from when the evidence only tends to prove things.

Or, on the other hand, he may test the evidence of some source and perhaps find that the authority was really in no position to have observed the facts, or that his testimony really was not intended for just the particular situation, or that the authority is not well known. By this last-minute test seeking outstanding material, the thing that the writer intended to feature may be subordinated or taken out entirely.

In deciding how to present authority, the writer will want to know:

Is the authority known to these readers as an authority on this question? What is the emotional attitude of the reader toward this authority? Is he speaking in an unbiased manner? When and where did the authority express himself? In what manner? Out of date now? Is there enough authority used? Is the use clear? Is authority used in the places needing it? Is your authority different from others? Legitimately so? General capability all right?

When an authority has said something in an apt and concise manner, it is often effective to give the statement in the form of a quotation so that the reader will see the exact words. Quotations, if not too long or frequent, make for effective presentation. They may also be used to show non-concurrence. Showing the exact form adds emphasis and belief, and retains originality of the matter quoted.

Quoted material may appear in the body or in a footnote, depending on its importance or relevancy.

PRESENTING EVIDENCE

The type of evidence used in the report will have to depend on the nature of the investigation. In reports of an experimental nature, the nature of the evidence is mostly facts and figures, and pictorial. Age, service, past experience, testimony, and even sample and trial, may be used as proof in various reports. For instance, a presentation of the number of years of successful experience the Smiths have had in operating restaurants may give considerable weight to the recommendation that the stock would make a good investment.

Facts and figures are the basis of all scientific proof, but the combined testimony of several hundreds or thousands of users offers good proof to the hosiery company that it is necessary to change the style of the ankle. A reel of motion pictures accompanying the report may aid the presentation.

For effective visual presentation of evidence, see the chapter on charts and graphs, and on mechanical make up.

Hasty Generalization

Hasty generalization, which is drawing conclusions from too few data, is frequently guarded against when interpreting data but permitted to enter the report in various forms when writing. The way certain conclusions are presented in the writing make them appear generalizations when in reality they are perfectly legitimate conclusions but stated in vague or indefinite terms.

Much trial-and-error method seems to be reflected in,—
“There was considerable difference of *opinion* as to the value.”
The writer probably referred to *facts* instead of *opinion*, but his choice of words leaves the wrong impression.

And in this report, “It was unanimously ‘believed that it was ineffective’ whereupon a new ‘strong belief’ was formed, and it is their belief now that ‘it could be applied successfully’.”

An attempt to “equalize these apparent inconsistencies” might have been based on facts, but the writer loses all the value of them.

It is bad enough to base interpretation of data on hasty

generalization, but doubly so to give the impression in the report through lack of specifiveness when sufficient facts were really established in the investigation.

Analogy

Analogy—particularly figurative analogy—may often be used in a report for the purpose of making a point clear but not to prove it conclusively. Such analogy should be presented so that the reader will not think it is being offered as proof.

Example of figurative analogy:

“Don’t change generals in the middle of a campaign because you wouldn’t change horses in the middle of the stream.”

Since the likeness of circumstances accepted and understood is general, the reader will associate his past experience toward the end of making clear a point, not accepting it as absolute. Technically, of course, a change of horses in the middle of some streams would be a godsend, while a general removed in the middle of a campaign might save many lives and win battles.

To attempt to introduce analogy as proof sometimes leads to such ludicrous conclusions as:

“Since a flea jumps 1300 times its own length, a man should jump $1\frac{1}{2}$ miles.” “Since a horse gets its growth in four years and lives to be 20, a man should live to be 100.”

While not good proof, analogy frequently aids in presenting facts clearly, or in adapting the material to the reader. When the material in the report is unfamiliar to the reader, presenting it analogously to something that he knows will recall associations with which he is familiar and cause him to grasp the facts more quickly.

“When the Vanderbilts purchased the Big X, the common stock was selling around \$70 a share, and it is now selling close to \$235.—If the Vanderbilts can do with the C.I.P.H. what they did with the Big X, the stock should be a good buy.”

The first sentence alone would be offering analogy as proof, but the last sentence labels the first as merely an illustration. Nevertheless, it is good psychology, because it puts the reader in a receptive frame of mind despite himself.

Fallacies

Even though an investigator has carefully and correctly interpreted his data, for various reasons he may write his report so that he leaves the impression of fallacious reasoning.

Sometimes he has been so close to the work that he will assume a truth in writing, and work from that assumption when he has not actually proved it to the satisfaction of the reader. Maybe he has done so in his investigation, but the reader must see the proof to be convinced. This begging the question may be a dodge to avoid proof.

Although many data have been collected during the investigation, the writer may not include sufficient in his report and hence leave the impression of the fallacy of drawing conclusions from insufficient facts.

An apparent fallacy, though not always a real one, may come from not properly defining the question or terms, thus causing the reader to criticize the facts from a parallel train of thought.

In attempting to adapt the report to the reader, the writer will omit material that he is afraid will not be readily understood to such an extent that the conclusions that he draws do not logically follow. Or he will play up a part of a thing so much that he casts doubt on the rest.

In presenting a certain personnel policy because a large number of companies favor or disfavor it does not prove it good or bad. While testimony of numbers will have effect, facts or the reasons why are necessary to gain conviction.

Presenting evidence from a traditional angle may improve an oration but has little effect on a report reader who wants facts.

FROM THE READER'S POINT OF VIEW

In preparing a report for business use, the writer is not trying to get information out of his head, nor is he merely recording the result of some investigation for the purpose of filing. He is trying to get the information to register on the minds of the executives so that it will accomplish a certain purpose, which may be action, or confirmation of a past action. Consequently the report must be adapted so as to catch the executive's point of view, which in turn usually influences or determines the object

of the report. If it is evident that his chief interest will be how much a thing will cost or when it will be done, the data should be presented so as to answer these questions to his entire satisfaction, and usually early in the report.

Data that might be of considerable interest from an engineering point of view will be subordinated to the time of the completion of the project if the reader is willing to accept the writer's statement on data but desires to see definite estimates on the completion time. The market analyst is accustomed to subordinating important material to less important that is of more interest to some types of clients, but the engineer is often loath to immerse his technical data to what he considers less important material. Consequently the executive faces many engineering reports with a "do or die" expression.

The report writer needs to make a study of the human side of his problem and write his reports as though the reader were on the other side of the table from him, thus being able to watch the expression on his face as he reads each section. By taking the rôle of reader as well as writer, he will determine many questions in advance that the reader will want answered, such as terms and expressions that are not clear, and he will present his final report accordingly with the result that it will be adapted. Even the technical reader, accustomed as he is to statistics, sometimes shrinks from reports that are a mass of figures, and especially so if the figures are not arranged and presented in the most easy and logical manner.

Most business reports are interesting to the executive because of the results attained. He trusts the investigator for the accuracy of the data, or he would not have given him the commission. And if he wants the data checked before taking final action, he can pass that detailed task to someone else. The investigator must take cognizance of this desire for results first and not force the executive to follow through a maze of data arranged in chronological order before his search is rewarded. Of course if the report is one in which the executive demands all the data so that he can draw his own conclusions instead of accepting the conclusions of the report, the logical order of arrangement would be correct, but many industrial engineering report writers would do well to follow the modern style of presenting the conclusions and recommendations first, leaving the data to be studied at will.

HUMAN INTEREST

A good example of a humanized report to a general group is that of Mr. H. G. Otis, Clarksburg, W. Va., in his city report for the voters. Without careful selection of material, this could have been long, technical, and deadly—the kind that is placed on the shelf for alleged future reference or immediately filed in the waste basket.

Instead, he cut the length to twenty-four pages in which he featured simple language, short paragraphs, and frequent headlines. He used the smallest amount of figures possible to bring out desired comparisons, because he knew that the average man shrank from figures. A full list of the personnel of the city government with their telephone numbers appeared on one of the first pages, which seemed to say, “Your officers are not offering you merely lip service. Here are your names, telephone numbers, and the work of which we have charge. If you want something, see what department it comes under and call us. We’re here to give you service.”

A synopsis of single sentences covered the chief points of interest in the report. The body of the report set forth the progress, and frequent headlines separated the stories into easily digestible units. A tentative program for street improvement with a detailed outline of the proposed bond issue was quickly and clearly presented. A schedule of improvement procedure in fifteen short sentences gave the readers a quick view of the future. And the back page devoted to “Do Drops” suggested how the people could make better use of their officials, and added humanness to city engineering, finance, and operation that was a welcome relief in a customarily dry report.

Lack of imagination in fitting figures into the lives of the readers or into economic conditions causes many financial reports to be stiff, stereotyped, and unadapted to the reader. Significant facts are either not featured or they are selected for their interest to the writer rather than the reader. Facts are neither interpreted nor adapted.

Terminology of issues, mortgages, times interest charges, earned after depreciation, kilowatt hours—all may be dry, legalistic, forbidding terms unless special effort is made to adapt them to the reader.

Choice of subject matter, news value, human interest, persuasion are being used in telling the story to the reader. To make human the story, conversational tone, good English, and the arts of the writer are employed to gain the interest and good will of the reading public as modern practice demands, or to gain the responsive attention of an executive who is accustomed to well-presented material in other fields and sees no reason why he should not find the same in reports.

Financial reports illustrate the necessity for adaptation and human interest, and show that some companies recognize that fact.

The problem of adapting the financial report and of getting it read, particularly the regular reports to which the reader gets accustomed, confronts the corporation president at least annually. His readers are not "financial minded," and the regular terminology of the financial report means little to thousands of the stockholders.

Yet these stockholders are vitally interested in the progress of the company and want to know about it—in a way they can understand. They want a report written with "you attitude" instead of all "we attitude."

Financial reports lack interest to the average reader. They bury all achievements under cold figures. Yet every business in the course of a year has events happen that are interesting, perhaps full of human interest. Some insurance companies, probably because their business is so widespread and dependent on "people," were among the first to attach interesting data to their financial reports. They recognized the opportunity to develop confidence in the company's management, to foster greater pride on the part of employees, and to acquaint the public with the scope and importance of the company's activities. New acquisitions, additions, improvements, new markets entered, changes in personnel—these are only a few of the things that could be told to an interested audience.

The Minnesota Mutual Life Insurance Company, St. Paul, Minnesota, recently took a page advertisement to present the financial statement, and under the head "A Brief History of a Great Achievement" showed the photographs of the officers and trustees, all leading men of the Northwest, who had caused the

business to show a constant increase. Incidentally, this copy carried a strong appeal to pride.

The payroll, building activities, and other facts to show the place of the business in the community were interesting alike to business man, employee, and policy holder, giving to all a feeling of security and sense of proprietorship.

The financial statement itself, which was the inspiration for the message, was presented in the conventional manner, at least adding authority and prestige.

The Corn Exchange Bank in New York is another institution to defy the tradition of forbidding financial statements by publishing "a bank statement that any man or woman can understand."

The Metropolitan Life Insurance Company adds to its annual financial report facts concerning the Health and Welfare work—facts that are interesting to every reader—making it clear that the former makes possible the achievements of the latter. Included in the report was an offer to send pamphlets on Health and Welfare upon request, which brought requests for approximately 50,000,000.

Under the headline "Hearts and Dollars," is found plenty of interesting facts presented in attractive style.

"While the average life span in the United States is $5\frac{1}{2}$ years greater than it was 12 years ago, the life span of the Industrial Policyholder of the Metropolitan increased nearly $8\frac{1}{2}$ years—a betterment of three years over the general average—in the same interval.

"These increases in longer life are due in large part to the Metropolitan's Health and Welfare work among its policyholders."

This shows how contrast is emphasized by writing from the "You angle"—

"You and all the other 22,000,000 policyholders—one out of every six people in the United States and Canada—reap the benefit through better health and decreased cost of insurance."

The frankness with which they say, "We publish an annual business statement of the Metropolitan, not because we think that the figures will be remembered, but because they offer conclusive evidence of unusual growth and strength to its 22,000,000 policyholders," goes further toward convincing the average reader than the entire financial statement.

The Northwestern National Bank of Minneapolis has had good results in solving the problem of getting a financial report read by humanizing it and incorporating allied facts of interest.

A Bank Statement that any Man or Woman can Understand	
Condensed Statement as of March 1st, 1929	
The Bank Owes to Individuals, Firms, Corporations and Banks	<u>\$262,649,632.53</u>
A conservative banker always has this indebtedness in mind, and he arranges his assets so as to be able to meet any request for payment.	
For This Purpose We Have:	
Cash	\$41,953,757.32
(Gold, Bank Notes and Specie) and with legal depositories returnable on demand	
Checks On Other Banks.....	45,871,789.51
Payable in one day.	
U. S. Government Securities.....	67,254,528.53
Loans to Individuals and Corporations.....	50,027,556.00
Payable when we ask for them, secured by collateral of greater value than the loans.	
Bonds	18,111,786.34
Of railroads and other corporations of first quality and easily salable.	
Loans	47,309,048.95
Payable in less than three months on the average largely secured by collateral.	
Bonds and Mortgages.....	16,127,378.16
Banking Houses	9,303,869.66
All located in New York City.	
Other Real Estate.....	37,296.61
Total to Meet Indebtedness.....	<u>\$205,997,561.08</u>
This Leaves a Surplus of.....	\$33,347,928.55
Which is a guarantee fund upon which we solicit new deposits and retain those which have been lodged with us for many years.	
Our listed resources enumerated in this statement, do not and can not include those assets of friendliness and helpfulness which this bank has in the personnel of its board of directors, its officers and employees. These are assets which pay dividends to our patrons in service and satisfaction.	
The Corn Exchange Bank can act as one of your Executors or Trustees, Issue Letters of Credit, Travelers' Checks and Drafts on Foreign countries, rent you a Safe Deposit Box, and provide every Banking and Trust Service.	
THE CORN EXCHANGE BANK	
Established 1853	
WILLIAM AND BEAVER STREETS	
and 66 Branches located in all Parts of the City of New York	

Instead of the customary "funeral" card crammed with figures, this bank now sends out an attractive booklet with a four-color cover, the picture on the cover corresponding to the subject matter featured inside. The first page inside is devoted to some industry of the Northwest, as flax, lumber, butter, cop-

per, meat, or some phase of the country's development, as water power, railroads, machinery, or perhaps something of sectional historical interest. In presenting each subject the part played by the bank in the development of each is tactfully added.

"The cultivation, marketing, and manufacture of flax is a foundation industry of the Northwest. The Northwestern National Bank has the satisfaction of knowing that it has done much, in a financial way, in the development of so essential an industry.

"As hydroelectric plants transform the currents of our streams into currents of electricity and put them to use, so the financial institutions of the country, as one of their many functions, do their part in transmitting money power into this special modern channel. With the public, then, the engineers and the many industrial and utility plants they are potent factors in setting our water power to work."

The middle of the booklet is given over to the customary list of officers, directors, and the financial statement. Following is a page discussion of some department of the bank, as grain draft department, bond, trust service, radio news service, domestic and foreign exchange, or a general discussion of bank policies, of customers as shareholders, variety of directors, and correspondent bank service.

No attempt is made to interpret the financial statement, largely because the chief field of distribution for the booklet is correspondent banks and leaders in industries who are familiar with statements. These statements stand out in competition, and are filed for interest as well as for banking purposes.

A page of chronology in the front of the American Telephone and Telegraph 1928 Annual Report gives the reader a condensed picture of the growth of the company and makes the financial statement representative of specific progress. The following are a few extracts:

- 1876 First complete sentence transmitted by telephone
- 1881 Conversation by underground cable, $\frac{1}{4}$ mile
- 1892 Conversation by overhead line, 900 miles—New York to Chicago
- 1921 Conversation by deep sea cable, 115 miles
- 1922 Ship to shore conversation by wire and wireless
- 1927 Commercial trans-oceanic radio telephone service between New York and London
- Television demonstrated between New York and Washington.

GENERAL INTEREST

The following sections from the American Telephone and Telegraph, and from the Public Service of Northern Illinois, respectively, illustrate the possibility of incorporating features of unusual interest in reports:

"An outgrowth of the study of speech and hearing as a basis of better design of telephone equipment has been devices to aid the deaf—audiometers, instruments for measuring people's ability to hear which are particularly useful in the health examination of school children, and apparatus to restore wholly or in part an ability to hear to those whose deafness can be aided by intensifying sound. The Bell Telephone Laboratories have also devised an artificial larynx which enables people who have lost the power of speech by operation on the larynx, to speak again."

"Another development of importance and interest is the Company's Model Farm which was constructed during the year on 80 acres of land two miles west of Mundelein, in the heart of Lake County. This farm was established to encourage a wider use of electricity and to demonstrate to farmers, and to residents of the city who contemplate having a home in the country, the use of gas and electric appliances to minimize labor on the farm and add comforts in the home. Its popularity is evidenced by the fact that more than 20,000 people have visited it during the five months it has been in operation."

TONE

The tone in which reports are written contributes much to their interest and readability. A human, conversational tone is being employed more and more by institutions that realize the advisability of getting their reports read.

In a recent public utility report¹ we are told in a conversational style that—

"In November, the company completed an attractive new building in Libertyville. It houses the company's thirty-sixth retail store and has been welcomed as a distinct addition to the architectural and business development of that community."

¹ Public Service Company of Northern Illinois Annual Report, 1928.

And the personalized style of this—

"These were the first bonds ever sold by the company bearing an interest rate as low as $4\frac{1}{2}$ per cent. The entire issue was quickly sold and widely distributed by the bankers."

In comparison is this paragraph intended to convince and secure votes—but which is lacking both in proof and clearness for the average stockholder—

"The change from par value stock to no-par value stock in the present Eight Per Cent Cumulative Preferred Stock and Seven Per Cent Prior Preference Stock is in conformity with present-day corporate practice. Under the terms of the proposed amendment additional Prior Preference Stock may be issued with varying rights, limitations or restrictions (the annual dividend rate not to exceed \$7.00 per share), as may be fixed by your Board of Directors."

A conversational tone instead of the stilted, formal style used in the following illustration would go far toward making the reader feel that he was part of the company—

"Your Board of Directors has under consideration a plan which provides for the refunding of the outstanding funded debt of your Company with an issue bearing a lower coupon rate, and the retirement of the Seven Per Cent Prior Preference Stock by the issuance of a Prior Preference Stock with a lower dividend rate. This program will permit your Company to reduce its interest charges and Prior Preference dividend requirements, and to substantially increase the balance of earnings available for the payment of dividends on the \$4 Cumulative Preferred Stock and Common Stock."

A woman's club, showing a deficit, and feeling that something more than a stiff meaningless financial statement was needed to make its members realize the situation, attempted to use a tone and style that would be understood—

"The club showed an average monthly operating deficit for 1924 of approximately \$4,000 a month. The December figures indicate that for 1925 there will be a departmental loss only in the dining room and that, by loyal patronage, may be overcome. There is no escape, however, from the plain fact that the losses and deficiencies of revenue during this first year put us heavily in debt. We were unable to pay our bills. Many accounts are months in arrears. We, so to speak, have started housekeeping, paid the down payments on the house and

fixtures, have lived as our position called for, but the expenses were far greater than the monthly pay check."

INTERPRETING FOR THE READER

Many reports, written by accident or design, do more to deaden than to arouse the reader's interest, and withhold from him information that he needs. Passing over those written by design, consideration of the accidental class shows a lack of proper interpretation of details that without explanation are mysteries to many readers and not easy for some others to grasp.

Until terms and type of accounting service are definitely classified and defined, and until the need for advertising a business passes, until the human element is eliminated from business, reports should be explained.

Out of 400 items in a recent report on Waste in Industry, only about twelve could be evaluated in dollars, which shows the inadequacy of purely money statements.

The interpretation of a financial report is determined by its purpose and its readers. Naturally the code of financial circles does not have to be explained to the banker while it has to be made elementary to the layman investor. The average reader welcomes explanatory material.

Comments and criticisms on the report should be constructive whenever possible. In private reports, the client or employer depends upon the advice of the investigator and expects aid from his interpretation. Recognizing this need and responsibility, firms making professional reports keep a staff of specialists in all phases of business management and control who use audits principally as a basis from which to criticize constructively a client's operations and assist him in determining future policy.

Industrial success comes from having a sound business enterprise, enough capital, and competent management. Into the last requisite enters the inescapable human element, and it is this element so frequently omitted in presenting reports, both as to recognition of the personnel of the business and the human qualities of readers of the report. Interpretation of the report should be made with the reader in mind.

Striking changes, such as an unusual increase in business, furnish interesting and oftentimes valuable material for com-

ment. Other suggestions of material that may warrant comment are:

1. Detailed information regarding the statement
2. Explain important changes during the year.
 - in production
 - in prices
 - in distribution
 - fixed charges
 - expansion
 - surplus accounts
 - reduction of costs
3. Personnel management
 - A. Award of medals, etc.
4. Economic conditions and relations

The American Telephone and Telegraph Company discusses in an interesting manner—

Extension of Service

New telephones

Replacements

Policy Statement

Measures to maintain

Progress

Financial

Accuracy and speed of service

—completed calls

—handling informational calls

—aiding subscribers switchboard

—toll calls

—quicker installations

—new type telephones

Extension of trans-Atlantic service

Television

Results of study of speech and hearing

Disasters

Personnel work

—insurance

—pensions, etc.

When a stockholder completes the reading of such a report, he feels that he knows something about the business in which he has invested his money, even though the details of the financial statement may be vague.

The banker who formerly loaned on the balance sheet report, now demands many data to supplement the work of the auditor. He wants the balance sheet with its background interpreted for him. Entries referring to the plant, product, material on hand, etc., must be specifically explained. He wants to know about the organization, work in process, conditions and value of finished products, sales policy, working force, efficiency of operation, costs, accounting and engineering facilities in addition to those things referred to in the financial statement. The report accompanying an application for a loan is a presentation of facts plus their interpretation.

PERSUASION AS AN AID IN PRESENTATION

Although it be sacrilege toward the old concepts of reports to advise the use of persuasion, to omit a brief discussion of it in many types of reports would be to overlook a common fact. Persuasion in the sense of influencing the reader beyond what the value of the facts will warrant is not found in reputable reports, but persuasion in the sense of presenting the report in a manner which will insure its being accorded the consideration to which it is due is employed in direct proportion to the ability of the writer. Public consultants, such as some forms of engineering, marketing, and advertising agencies, "keep the wolf from the door" by the accuracy of their investigations and their convincing presentations.

Some consulting engineering firms spend almost as much in getting their reports ready for presentation as they do in the actual collection of data. They recognize the fact that many business executives are influenced materially in their actions and reactions by the appearance and general impression of the report and that they are frequently more interested in conclusions than in the nature of the data and method of their accumulation.

Before a vote is taken on appropriating money for some measure requiring engineering, the directors or public must have the engineer's report and give it some attention. Usually the project involved is a new departure and the voters will hold the customary antagonism toward something new. Consequently the engineer's report will have to break down that antagonism and substitute conviction. To say that this does not embody sales-

manship in knowing how to present material effectively is winking at fact.

Properly presenting facts pro and con, and relating them to other considerations is a persuasive and convincing method. Carefully deduced findings (not guesses) taken step by step from unquestioned facts, expanding the subject in terms clear and convincing to the reader is persuasive. Pictures of alleys showing need of sewers, or of inefficient or dangerous machinery, or of health statistics are persuasive.

Persuasion in the reputable report is merely proof provided with interest, and sometimes a motive for its acceptance, although the motive other than self interest or gain is not much used. In business reports the appeal to motives as sympathy, pride, fear, etc., is seldom found, although they are not unknown to some forms of civic or community report such as Family Welfare Society, or even the Chamber of Commerce. Emphasizing "the advantages to be gained" rather than "reasons why" is supplying a motive for the acceptance of the report.

Emphasis on certain features which the writer from his thorough knowledge of the subject feels should be brought forcibly to the attention of the reader is persuasion, but this emphasis must be an impartial selection of points and not caused by other than normal interest and judgment of the writer.

Persuasion is used in the business report, intentionally or unintentionally, by means of the fairness shown in presenting data, by the restraint in writing, sincerity in tone, tactfulness in handling disagreeable material, through establishing confidence in the writer, by the mechanical readability of the report, the tone used, and sometimes by the aggressiveness shown.

Diction or the vehicle by means of which thought is expressed does much to inspire confidence in the writer. Adapting the diction, tone, illustrations, etc., to the reader is an element of persuasion. It is human nature to be more or less antagonistic to the unknown or to what is not readily understood. Knocking down this barrier is merely persuasion. Vivid word pictures, action verbs, and color words, exhibits, analogy, typical instances—are all means of making the material vivid to the reader. Direct quotation of good authority may overcome the strong conservative power of precedent.

Violation of tact is a violation of persuasion principles. To

convict the reader of ignorance if he does not immediately install your new registers will probably mean that you lock the mental door to acceptance. Neither is any man a god, and the report that makes him appear as such will be seriously questioned. Referring to a bank that failed and injured the reader is usually tactless material to put in a report to sell him stock in a new bank, because it tends to stir up old fears and prejudices.

Recognizing that a suggestion is only a suggestion and leaving the prerogative of decision to the reader is a mark of tact and hence persuasion. Studying people—their needs, desires, etc., furnishes the background for adaptation of the report.

A report presented to an industry has this persuasive ring of battle that will have as much effect as the facts contained in the body.

“————— proposes to make a fight for what it considers its rightful market—and more, to make a fight for that fringe market wherein the selection of its product or ————— will be swayed more by educational propaganda, good salesmanship and merchandising, than by any self-evident necessity for one of the other materials. * * * * It is necessary to meet this competition with better organization, better educational methods, more skilful handling of the customer.”

A somewhat startling, though persuasive way to present a cost argument:

“Price cutting is defensible no matter how uncomfortable, under some conditions. It is defensible—

1. To hold old customers when they need your help.
2. To carry overhead.
3. To keep a plant operating.
4. To keep newcomers out of your field.
5. To eliminate unfair, incompetent and weak competitors who have become a menace to the industry.

“Illegitimate price cutting cannot be helped except by education. Cost work is the basis of this education. The price cutter too often cuts without necessity, and it is not necessary where an industry has not developed its market. Lack of cost information is the cause of general price cutting in this industry.”

CLEARNESS AND COMPLETENESS

For clearness the report must be complete. All data that will have any direct bearing on the question in the mind of the reader should be included. Other people may draw different conclusions from the same data. In order to include complete data, it is necessary for the writer to put himself in the place of the reader and determine what he does not know. Facts that seem self-evident to the investigator may be unknown to the reader. Because it takes considerable versatility to draw oneself away from an investigation and look at it from the objective angle, many investigators overlook the "you attitude" and merely present facts as they see them.

In submitting a report on a technical subject to a layman audience, the writer of the following recognized that he had to present terms in understandable form:

"But when I speak of 'integration' in any territory, I mean interchange over trunk transmission lines designed to transmit great quantities of power at high voltage, over great distances so as to give to the whole territory thus integrated the advantage of the cheapest possible electric generation at the lowest possible transmission cost."²

This footnote in the same report, not only added interest for many readers but probably made something clear that had been vague since grammar school:

"He (Watt) selected a heavy dray horse, a dozen muscular men, and by means of a rope and traces, beginning with four men, added man after man pulling against the horse, until he found that when eight men were pulling they balanced the horse's strength.

"Then continuing his experiments, he found that a horse could lift, by means of block and tackle, 330 pounds at a rate of 100 feet per minute, which, of course, was the same as lifting 33,000 pounds one foot a minute, or 550 pounds in one second; accordingly he designated his steam engines and sold them on that basis. That is known as mechanical horse power."

On the other hand, many a report is written in such involved style as to be obscure to the lay reader. The following example is a paragraph from a financial report sent to average readers with the idea of inducing them to invest.

"The redemption value of Blank Trust Certificates, Series B, (after the one per cent redemption charge had been deducted) may, until

² Governor Pinchot's Report of the Giant Power Survey, p. 24.

otherwise determined by Blank Trust Company, be applied, in multiples of \$1,000, in payment of subscriptions for Blank Trust Certificates, Series A, issued by Blank Trust Company, (minimum face value per Certificate \$10,000) which subscriptions shall in all cases where said Blank Trust Certificates, Series B, are duly presented for redemption as of the first Friday in each quarter, namely, the first Friday in January, April, July, and October, be exempt, to the extent of such application, from the entrance charge of one per cent, payable in respect of other subscriptions for said Blank Trust Certificates, Series A."

Without an explanation of terms, the usefulness of the following, directed toward legislators, is doubtful:

"These plants have a prime mover capacity of approximately 17,545 kw, generating 12,469,981 kwh."

Semi-technical details in the following are told the average reader in a way he can understand and repeat, which is good salesmanship:

"The majority of these rural lines are built along strategically located highways and form a part of a definite program of expansion which will extend over a period of years, and which will provide adequate electric service to farms throughout the company's territory. The principal feeders built under this program are so located that only comparatively short lateral extensions will be required to reach the farms."³

Good diction and sentence structure makes this interpretation of figures intelligible—

"With the construction of 266 miles of rural lines during 1928, the company's total mileage of such lines was increased to 1,387, representing an increase of 23.6 per cent over 1927. From these lines, service is supplied to 3,506 rural customers, 806 of which were added during the year."

In interpreting certain features of the financial operations, the same report shows the hand of a good writer in the clearness of this—

"The company offered 93,550 shares of common stock without par value to its stockholders for subscription at \$100 per share in the

³Public Service Company of Northern Illinois, Annual Report, 1928.

ratio of one share of the new stock to each five shares of their holdings of both preferred and common stock. Of the shares so offered, 92,453 were subscribed through the exercise of stockholders' rights, and the remaining 1,097 shares were sold at the market price. A total of 41,505 shares were fully paid and issued before the end of 1928, and 52,045 shares are being paid for on the deferred payment plan, final payment being due May 1, 1929."

Building and Loan companies, with their variety of customers most of whom are not proficient in the financial field, have learned to explain their wares in plain terms—

"The Association offers you three plans for saving.

"Class A, on which you pay \$1.00 per share per month for about 79 months, when each share matures \$100.00. For example—10 shares, \$10.00 per month, total paid in \$790, amount returned \$1000.00.

"Class B, on which you pay \$.50 per share per month for about 137 months, when each share matures \$100.00. For example—20 shares, \$10.00 per month, total paid in \$1370.00, amount returned \$2000.00.

"Class C, on which you make an original single payment of \$65.00 per share. Each share matures \$100.00 in about 80 months. For example if you have 650 idle dollars they will entitle you to 10 shares, which will return you \$1000.00 in about 80 months."

In an article urging better style in reports, Mr. W. K. Palmer cited the following illustration of his point. Read this for clearness of style—or lack of it:

"The grade and curves will be easy and the line will probably be operated by electricity, and there won't be any rock so the line will not be expensive to build, and there will be plenty of travel because the country is well settled with a good class of people that raise cattle and hogs, and the dairy business is a great business in that region so there will be a lot of milk cans and butter and eggs that can be carried every day on the new road which will make the freight business good." ⁴

The absence of clearness as in the following is common:

"On motion of Mr. Blank it was regularly moved and seconded that ——— street be improved."

⁴ PALMER, W. K., "The Writing of Engineering Reports," *Engineering News*, 85: 1103.

It might be unfortunate for the taxpayers if this street extended several miles since there are no limits to the motion. Nothing is said about cost, or how the money will be obtained. The nature of the improvement is doubtful.

VIVIDNESS THROUGH ILLUSTRATION

There is a certain fascination, it seems, in giving pictorial representation to the fact. For example the fact that 20 of the homes surveyed have electric toasters was portrayed by five houses upon four of which was superimposed a piece of toast, on the fifth a fork and an electric toaster. That 86 per cent of the electric toasters are in homes that have telephones in them was illustrated by nine electric toasters being placed alongside nine telephones. Certainly nothing is left to the imagination in such illustration.

The illustrations are justified upon the grounds of the presentation of the idea being adjusted to the reader. In turning through one metropolitan daily survey of a trading zone, one finds such pictorial illustration as maps, pie charts, bags of money, graphs, and pyramids. In another survey, one sees pictorial representation of values of homes by heights of houses, upkeep of homes by a series of chairs of different quality, electricity in homes by a light bulb being superimposed upon the house, proportion of telephones in homes, relative vocations by picturing men in characteristic garb of the profession, day on which soup is served and the number of times in each of the days of the week by the number of cups being placed in a column headed by the name of the week. The value of the representation can, of course, be judged only in the light of purpose. That illustration has value is demonstrated by its widespread use in presenting business conditions and results. The charts serve both administration and publicity function of business. To be effective in either case they must be adapted. So far as they are for the public, as is the case often in advertising, they will assume unusual and striking forms. When graphs used in the field of publicity are directed toward discriminating audiences, they will assume more complex forms and refined forms.

NECESSITY FOR GAINING CONFIDENCE

Accuracy and completeness of data alone will inspire confidence in the report, but the discussion of data, curves, etc., will indicate how much confidence to put in it. When data are uncertain, the fact should be frankly explained. Frankness and sincerity in tone will go far toward giving confidence in the report.

It has already been said that the report writer should not be influenced by a preconceived idea. It is human nature to twist facts to fit a personal idea. Sometimes data are omitted that do not substantiate the personal theory. This will not only cast suspicions toward the report as a whole, but may have to be explained later upon further investigation. All relevant data should be included. Maybe the reader will draw conclusions not apparent to the writer.

Sometimes it may make the field more clear and add to the confidence in the report if closely related subjects are purposely omitted.

FEATURING PERTINENT MATERIAL

Because of economy of time and expense, a report is limited to essentials, but in so doing important points should not be obscured by minor details either because of selection or method of presentation. Emphasis is secured by the proper selection of material, adapted to the reader and the nature of the report, and arrangement of that material for easy readability both as to position and amount of space.

Points that may be questioned or that go against tradition should be elaborated for greater emphasis, as should also features that are strongly favorable to the subject. To give conservative space to favorable data is good salesmanship and will not detract from the accuracy of the report unless used to camouflage unfavorable facts.

When information is secured from someone else, name and title should be given. Attention called to things not verified will sometimes add emphasis to the veracity of the rest of the report. Definite dates and figures should always be used.

If the report is being prepared for a client, it is often well to review the draft with him or someone else for suggestions or amplification.

A careful arrangement of the contents with a view to readability will add emphasis to the report. A jumbled report can hardly be expected to carry conviction.

Comparisons of various kind are common means of giving emphasis to facts. Taking into consideration changing times, figures taken from manuals of 10-15 years ago may offer striking comparisons with present-day figures on sales, profits, history, financial organization, or on competitors.

An annual report may be interestingly contrasted with others over a period of years, setting out changes in a separate column. In comparisons, changes should be shown clearly, with the statement individual rather than routine.

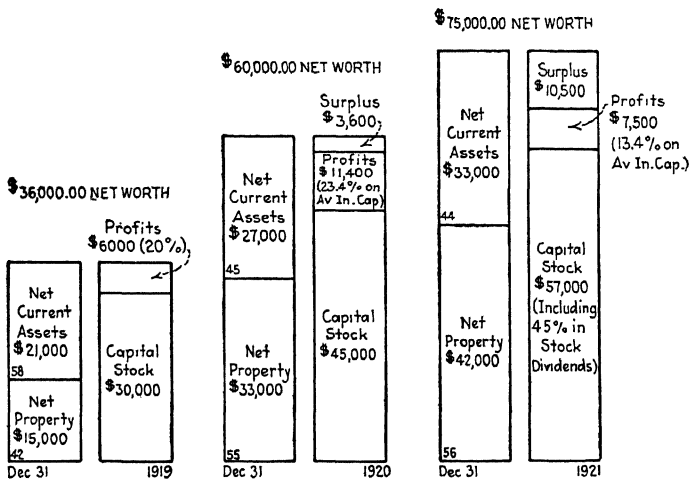
For example, every dollar of income from sales went to pay for:

	1922	1923	1924
Direct labor .....	.28	.23	.25

Charts and graphs are useful in emphasizing features of the report. Some financial reports made at regular periods, such as monthly, are presented entirely in graph form.

The following chart presented to a bank in support of an application for a loan, not only made the presentation vivid but added emphasis to some parts better than pages of narrative:

ADDING EMPHASIS TO A LOAN APPLICATION ⁵



⁵ STRICKLAND, A. M., "Charts to Show Banks," *Administration* 3: 528.

Conciseness of expression is another means of giving emphasis. Although figures in a report are definite, the discussion is often of a perfunctory, general nature. Generalities do not convince even the inexperienced reader. On the contrary, they make him suspicious.

With no reasons given, stockholders may be excused for doubting the quality of this investment when they read the bare statement—

“The lessened demand for products was accompanied by a gradual decline in prices, these price reductions being in continuance of the downward tendency which manifested itself in the preceding year.”

The conciseness of these statements carry conviction—

“At the end of the year there were 423,580 stockholders, an increase during the year of 24,459. No one of these stockholders owns as much as one per cent of the capital stock.”

“The average length of time for handling a toll call in the Bell System was reduced from two minutes in 1926 to one and one-half in 1927. About 90 per cent of all toll calls are now handled while the subscriber remains at the telephone, as compared with 80 per cent a year ago.”⁶

To say that “gas service was extended during 1928 to the communities of Antioch, Bradley, Chicago Ridge, Ivanhoe, Lake Villa, Lansing, Orland Park, and Pales Park”⁷ is much more vivid to the stockholders, many of whom are in this district, than merely to say that eight communities were added to the gas service.

Although the following paragraph is not well written to secure emphasis, the idea of comparison and giving reasons for the bad news contained seems to heighten rather than lessen the work of the officers—

“The net earnings, before taxes, of the Blank Company were \$33,197,456 in 1927 as compared with \$62,598,764 in 1926, a decrease of \$29,401,308. The net earnings, after a reserve for taxes of \$3,065,000, were \$30,132,456 for 1927 as compared with \$55,098,764 for 1926, a decrease of \$24,966,308. This decrease is due principally to the reduced realization on sales of petroleum products as well as to a loss occasioned by the large carry-over of the petroleum products

⁶ American Telephone and Telegraph Company Annual Report, 1928.

⁷ Public Service Company of Northern Illinois Annual Report, 1928.

inventory of December 31, 1926, at prices in excess of realization during 1927, which more than offset the fact that during 1927 the company not only reduced manufacturing costs but actually sold more products by volume with less man power and at a smaller marketing cost per barrel than in 1926, the volume of sales in 1926 having been 31,545,705 barrels as compared with 33,131,975 barrels in 1927.”⁸

Few people will read large numbers in a solid paragraph and be able to make a vivid comparison. If the figures in the paragraph quoted above had been set out in table form, or as a chart, they would have been much more readable.

In presenting figures, it is usually best to go from general to specific.

Arrangement and selection of type contributes to the emphasis given certain parts of a report. A synopsis of the report written in short paragraphs and placed in a box will call special attention to it. The use of black-faced type, italics, and under-scoring are frequent. Indention, heads, spacing, change in type size, footnotes to take less important material out of the body, are other mechanical means to emphasis.

When the subject matter is not familiar to the reader or the ideas being handled are abstract, use examples frequently. The relative emphasis to be given each topic must be determined and correlated. Data with which the reader is familiar should be condensed or omitted.

In the annual municipal report, a common fault is to detail unimportant things and omit or “bury” conclusions and results. The individual salary of Jones or Smith is not important enough for the body of the report, but the relative percentage of the payroll spent on certain departments is needed for comparison.

In a special report covering a test or some particular thing, detailed technical readings may be needed in the body, but in the annual report only the general description and results are needed. The detail should be placed in the appendix, or in a supplementary report for engineers or other technical readers.

Since it is a certain fact that taxpayers will not read the annual report with avid interest, it is only good psychology to lead with some outstanding material that will attract attention. Strict chronological order need not be followed in the municipal report any more than in other types.

⁸ Annual Report of the Standard Oil Company, 1927.

GLITTERING GENERALITIES

Emphasis and generalities are foreign to each other and cannot be reconciled. General statements, coming from insufficient proof or a barren vocabulary, serve only to confuse or antagonize the reader.

"A large number of inquiries have been received."

How many is "large"? Two or five hundred?

"Several people said——" leaves the impression that so few could be inveigled into making a statement that the writer was afraid to mention the actual number.

"Much rain——" may mean two inches or ten.

"The beginning of the year 1928 finds our business normal and with satisfactory prospects. A survey of probable demand for 1928 indicates a reasonable increase."

This makes a report, which was really good, sound questionable. The reader doubts the status of the company, its management, and its prospects, all because of the general terms "normal," "satisfactory" and "reasonable." Definite units of measurement would have changed the entire effect.

"Standards of quality have been raised and maintained in our products, and the policy of materially improving details of our product has been followed out in an effort to keep quality above that of competition. We have materially added to our lines in exclusive features and have perfected plans for considerable advance in this respect during the year."

Even stockholders in the company, to whom this was addressed, probably knew little as to the "standards of quality raised"; and the "policy of materially improving details," and the "exclusive features added" might be anything from new production machinery to new office equipment for the president.

SUMMARIZING EACH MAIN SECTION

When a report is long and composed of a number of more or less individual units, a brief summary of each of these units should be given either at the beginning or the end. These summaries may serve as the foundation upon which to base the conclusions.

For example, when one section of the report gives the result

of interviews with fifty jobbers, a summary of the results of these interviews will introduce the reader to the method or results so that he may follow the detail more intelligently. It will also serve as a digest to which he can refer hurriedly later without having to read the whole unit. This summary may be in tabulated form or as a discussion.

TABLE IV

EXAMPLE OF TABULATED FORM ⁹

Number of homes surveyed	28,203	100 %
Homes reporting magazines and farm publications as read regularly or received regularly..	21,148	75 %
Additional homes reporting magazines or farm publications as bought occasionally	1,498	5.3%
Total homes reporting magazines and farm publications	22,646	80.3%
Homes reporting no magazine or farm publication	5,557	19.7%

The above example preceded the itemized report of the survey, a common position in business reports. This summary may go a step further and be combined with conclusions and recommendations for each individual unit.

“The result of the interviews with fifty dealers indicates the Grip wrenches have forty per cent better sale than Wearwell, and that Claws have a twenty per cent better sale. These figures compare almost exactly with the figures of the Gazette’s survey made last month.

“The dealers are unanimous in explaining the popularity of the Grip wrenches as being the result of national advertising and the dealer protection furnished by the company. They also showed that the popular size is ‘00’, a size not made by the Wearwell.

“Common questions asked and difficulties met with the customers were: * * * *”

The next unit of the same investigation deals with another section of the state and is summarized in the same way, as is the next section devoted to garage men. Definite conclusions and recommendations are made after each unit has been presented and summarized.

The summary may take in part of the work of the synopsis in the absence of the latter. It should explain briefly the problem, the work done, and the results obtained. Sometimes the conclusions reached may be added.

⁹ Association of National Advertisers, *A Study of Duplication of Magazine Circulations*, 1928.

PICTORIAL PRESENTATION

Charts, diagrams, pictures, tables, etc., are part of the body of the report, but they constitute such an important part of modern reports that a separate chapter has been given to methods of that type of presentation. Merely as an illustration of the popularity of pictorial presentation, it might be mentioned here that several companies, specializing in reports, have recently accompanied their reports with one or two reels of motion pictures, so that the executive might see and read at the same time.

CONCLUSIONS AND RECOMMENDATIONS

The last section of a report arranged in logical order is composed of the conclusions and recommendations. In psychologically arranged data, these may come at the beginning or with each section.

The conclusions may be prefaced by a brief summary of the substance of the body of the report, omitting all minor details. This is useful in the long report in which the reader cannot carry all the facts in his mind.

The conclusions are usually brief, frequently presented in list or tabulated form, and consist of nothing but the convictions arrived at in the report—facts that the data clearly substantiate. The conclusions determine upon what the recommendations shall be based, whether those recommendations be of the writer or the reader.

The conclusions are the essence of the author's interpretation of the results without permitting any personal reaction.

The conclusions are a condensation of the important facts established, presenting in some cases the advantages and disadvantages of some certain action, factors that influenced the results, and comparison with other tests.

An informational report does not carry recommendations, but a pure analytical report does. Up to and through the conclusions, the report is impersonal based wholly on deductions, regardless of the opinion of the investigator. The recommendation may be tinged more with the personality of the writer since that is his section of the report. Naturally the recommendation is based on the facts involved, but the writer may give his own personal interpretation of those facts, knowing that the reader will make due allowances for the position of the writer and his known relation to the subject.

The following is a combination of general conclusions and a general recommendation, which is a common type but would be more useful if both conclusions and recommendations were stated more specifically.

"At all events, it should be remembered that the magazine to accomplish its end should be the employees' magazine. It is necessary that the plant paper be well edited and of real interest to the employees.

"As regards the Acme plant it would appear that a plant of its size should warrant a journal of from forty to sixty pages with a full-page editorial section. Very little advertising should be used, and the majority of the space should be devoted to personal and social items as these appear to attract the greatest interest.

"The size and wide diversity of the departments of the Acme plant certainly warrant the introduction of some medium for securing greater co-operation from the employees. As was pointed out in the preceding pages the employee magazine presents the best existing method for attaining this end. Since at present no Employee Benefit Associations exist in this plant, the management should take up the work on its own initiative and appoint some person capable of handling a paper, and get the thing started.

"It is recommended, however, that some Employee Organization be formed as soon as practicable, which will then take over the conduct of the publication in accordance with the principles set forth above."

Recommendations are not included unless asked for, unless the man or company making the investigation knows from past experience that the client expects recommendations, or because the investigator specially feels that the results of his work should lead to some definite action. Some executives or clients feel that they are not getting their money's worth if a company hired to make an investigation does not give recommendations. Before recommendations are made, the investigator should be sure that they are sound because resulting changes may involve the expenditure of considerable money.

In scientific reports, recommendations are not usually found, unless it is for commercial use, in which case recommendations are just as desirable as in any other type of business report.

Recommendations should be decided and positive, usually with only one course of action recommended. To present alternatives is often to put the reader on the horns of a dilemma from which there will result no action. To suggest that he either change the personnel of his office or change his filing methods is

not so effective as to study the situation thoroughly, decide on the best action, and present only the one.

In making recommendations, the scope of the report should be considered. If the scope is limited, the recommendations may sound far-fetched.

Although the writer should be positive in his recommendations, he should by no means assume the prerogative of the reader of making decisions. Recommendations may be forcefully stated but in a tone that leaves final action up to the executive.

In making either conclusions or recommendations, the major ones should not be weakened by over-emphasis of the minor ones. If there is a large number of each, they should be grouped to show relative importance.

Recommendations are often of value to the executive because of the new point of view presented.

In case of individual units in the report, recommendations may be made at the beginning or end of each unit. When each unit has a close bearing on each other, however, the recommendations will usually cover the entire report and be placed at the end.

The following illustration, although employing different terminology, is really concerned with summarizing the investigation and presenting recommendations—

Comments: Our survey of the activities and methods of the Traffic Bureau disclosed the following which we believe worthy of comment:

1. That the personnel of this Bureau is taxed to the limit in handling the volume of work with the present facilities and methods.
2. That routines of looking up rate information could be greatly simplified through the use of proper tariff files throughout the department and a visible rate reference file.
3. That claims are filed for a minimum amount of eleven cents. This minimum we believe should be increased as the cost of filing many of the claims is in excess of the amount recovered.
4. That the Assistant Traffic Commissioner is burdened with too much routine detail which should be turned over to his assistants and the office boy.

Suggestions: It is suggested:

1. That adjustable steel tariff files, similar to those already in use in this department be supplied for filing the balance of the active tariffs which are now filed on open shelf files.
2. That a visible rate reference file be installed on the rate desk to cover all rates most often referred to.
3. That the minimum amount for claims filed be increased to twenty-

five cents (\$.25) except in the case of reparation claims where the aggregate of several claims may exceed this amount.

4. That the stenographer in the Traffic Department should handle the distribution of the mail of this department in place of the Assistant Traffic Commissioner and that Assistant Traffic Commissioner have the rate clerk handle all work of rate quotations and the auditing of freight bills in so far as possible as this is a function that belongs to the rate desk.

Advantages: These suggestions if adopted will have the following advantages:

1. That it will improve the appearance of the office.
2. That it will facilitate securing rate information and permit the handling of a greater volume of work without an increase in personnel.
3. That it will eliminate handling a number of small claims where the amount to be recovered will not justify the expense.
4. That it will relieve the Assistant Traffic Commissioner of considerable detail work and permit him to give more time to the more important activities of his position.

When the report is written, it should be read aloud. If it is easy to read it will be easy for the reader to understand. If there are places that seem to be slow, they are probably wordy or not concise. The report should be checked to see that the facts are clear, and then condensed. Note the sincerity and naturalness. If the outline was well prepared, the report should have good coherence.

After writing the body of the report, it is well to ask oneself these questions:

- Have I used enough of the proper facts from among the data collected?
- Is the scope of the report properly limited?
- Did I define my terms and issues clearly?
- Is the presentation concise? Perfectly clear?
- Are the conclusions sound and the recommendations workable?
- Have I quoted good and sufficient authority?
- Are the major and minor issues involved so that they do not attract the proper attention?
- Have I adapted the report to the reader's point of view?
- Have I adapted it to the reader's experience and knowledge?
- Have I adapted it to his style?
- Does my writing fit the subject matter—or is it too technical?
- Have I used enough imagination in presenting the facts so that I have answered all the unasked questions in the reader's mind?
- Have I used the best pictorial presentation for this type of reader?
- Is the mechanical makeup easy to read?
- Have I distinguished in type size and placement between the different value heads?

Have I used an order of material arrangement that will attract and hold the reader's interest?

Have I given the proper amount of space to the things that should be emphasized? And less to minor points?

Does it sound like a human being wrote it?

Is the tone impartial, yet human?

Is it fair, tolerant, broadminded, dignified, but not stiff?

Are the conclusions definite rather than evasive?

Are the recommendations advisory rather than imperative?

Have I overstepped and assumed the prerogative of the reader at any point?

Is my diction and sentence structure precise, varied, and fresh, or is it "just like any routine report"?

Have I introduced any evidence that will be questioned?

Have I depended any place on false analogy or hasty generalization?

Are the paragraphs short enough to be easily read?

Did I make the background clear to the reader before I asked him to read the body of the report?

APPENDIX

Following the body of the report and preceding the index is the appendix which, like the appendix of a book, is used for material which should be included but which is not of such direct interest that it belongs in or would add to the readability of the body. Supplementary data which all or part of the readers might require to verify the report may be included in the appendix.

Contents

These supplementary data often laboriously collected to form part of the record, may be of varied nature. An historical sketch of specific or general interest as a reference, may be found in the appendix. Mathematical treatment, such as derivation of formulas, not necessary to the body of the report, but needed for technical reference, may be included. When several pages of tables or statistics are necessary, valuable as evidence but only to support the conclusions, they may be put in the appendix.

Other possible contents of the appendix are:

Compiled data—complete data secured in chronological order of tests, etc.

Special features—design and application of special instruments, with detailed description.

Formulas—how developed, samples, etc.

Unexpected observations—peculiar features arising during the investigation, but not directly bearing on the subject.

Related subsidiary facts.

Further details of methods used, if necessary.

Supporting tables.

Speeches, laws, etc., too long for the body of the report but needed attached for reference and proof.

Copies of questionnaires used in the investigation.

Committee reports.

Exhibits—when appropriate and not too large. Usually exhibits of a physical nature will accompany the report separately. The exhibits should be easy to handle and easy to understand. If the exhibit is golf balls, they may be put in a box, plainly marked or numbered to correspond to a key in the report. When there is a considerable number of exhibits to accompany a report, there should be a list included at the beginning or end of the report and a duplicate attached to the box containing the exhibit.

Charts, graphs, sketches, and all kinds of pictorial presentation (discussed under chapter on graphic elements) do not need to be inserted in the text of the report. Unless the pictorial element constitutes practically all the report, the amount included in the body should be limited so that the reader will not be slowed up in his reading.

Arrangements

The material in the appendix may follow the chronological order in which it was compiled, but usually it will be arranged to follow the order in which it was mentioned in the body of the report. Each separate exhibit in the appendix—when there is a considerable number—should be designated, as No. 1, No. 2, etc. or Exhibit A, Exhibit B, etc. This permits reference in the body of the report to Exhibit A, etc., thus saving the time and space of a complete heading.

Illustration of Lists of Exhibits

A1—Statement of Duties (face)	10: 25
A2—Statement of Duties (reverse side)	10: 26
B —Typical Organization Chart	12: 27

or

	PAGE
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¹⁰ From Seventh Annual Report, United States Shipping Board.

INDEX ¹¹

Because most reports are not long, an index is not always needed. However, in the case of long, especially printed, reports, an index is appropriate for the purpose of quickly locating particular points.

While the table of contents is an orderly arrangement of topics as they are discussed in the report, it does not enable the reader to find many specific details. Instead of being a digest of what the report contains, the index is merely a pointer to details.

To prepare an index requires a thorough knowledge of the contents of the report, but the writer naturally has that. His job is to show where information may be found by means of a *finding* plan—namely, the right kind of index.

The index should be prefaced with an explanation of any marks used that might not be clear. If the page has been divided into sections, as ninths, an explanation of 45³ would mean that the reference would be found on page 45 one-third of the way down the page. Or an asterisk may mean that a figure will be found on the page indicated.

Preparatory to indexing, a definite plan should be decided upon and followed, particularly as to the style of entries to be made and the minuteness of detail. It will be impossible to shift this plan in the middle of the job without doing most of it over. Select a plan that will be adapted to as many readers as possible, which means considering whether the readers will be general, expert, or professional. If the index is for doctors, Latin names may be used, or both Latin and English.

It will be necessary to decide how many minor items to include, and how much distinction to make between similar items. If the printer decrees that there will be only a definite number of pages available for index, the question of extent will be settled.

Types of Indexing

There are all types of indexing, some books having as many as fifteen or twenty different indexes, ranging from the alphabetical to all types of classification according to content. The

¹¹ Adapted from New York State Library School Bulletin No. 50 in Indexing.

alphabetical index is the most useful for ordinary usage. Classification under content heads is all right for specialized readers, but usually requires the reader to know too much concerning the subject to make for ease in finding material. A magazine indexed separately for front, editorial, mechanical, etc., is confusing.

There are three types of entries that will be used most by the report writer, the *subject entry*, as accountancy, banking, sales letters; the *title entry*, as the title of an article, etc., with the *A*, *An*, or *The* removed to the end of the line; the *name entry*, as the name of a person, place, institution, etc.

Cross-References

Following a head (see....) is the general instruction to look elsewhere for all items on the subject matter. This may refer from a blank entry.

The reference (see also....) indicates a subdivision of the subject related or containing allied matter, e.g., Beverages (see also *tea*).

Cross-references save considerable repetition and space, but in using them care must be taken that they refer to new material.

Form

The following three forms are the most commonly used:

Jones, J. V., 126, 135, 185, 264 (heavy type shows the chief reference).

The more complete—

Jones, J. V.

—life and work, 185

—relation to Smith, 264 (note the alphabetical arrangement of sub-entries)

Condensed and chronological—

Jones, J. V., civil war influence, 126; life and work, 185; education, 267.

Double entry—author and titles—

Rush, A. W.

By auto to Mexico, 24

Canals of New York, The, 68

New York Canal System, by A. W. Rush, 68.

Preparation of Index

After having decided upon the plan to follow, the report will be read and the entry and sub-entry words marked. This may be done by underlining the entry words, with one, two, or three lines to indicate their positions as entry, or first or second sub entry. An x will indicate a "see...." reference, or an "x also" for a "see also....". A double x x may indicate a reference both ways, when placed under two words. Variations of check marks can be evolved to serve the same purpose.

After reading and marking, the entry words should be taken off on slips of paper, care being taken to check the page numbers. If the typewriter is used, several may be placed on one page and then clipped. Mark the slips for type size, insert cross-references, and separate alphabetically. If marks are used that may not be familiar to the printer, a table or key should be included.

Entry word

The entry word should strike at the root of the question, and should be a word that the reader will seek—not one that is so specific or technical that he will not think of it. Such general phrases as "help," "differences in quality" are not vivid and make poor entry words. The entry words should be a noun or substantive phrase. When a phrase, enter under the most significant word or in two places. "Fruit growing in Oregon" would be entered in two places. "Taxes" may combine several things under the one head, but "contests" is not sufficient for "tennis".

Words used together all the time, as "current issue," should not be split. Give such description as necessary for full understanding. Avoid unusual words unless familiar to the reader. It is usually well to make a cross-reference from an uncommon to a common name.

Heads or entry words in the index should not be any more general than necessary. If the report is concerning Mexico, its name will not appear as an entry because the whole report bears upon the one thing. If the report is a comparison of several countries, the entries may read

Mexico—

Oil—annual production

—British capital invested in

Some general entries are needed to combine like factors, in which case the entries must clearly indicate the subheads to be expected under them, e.g.,

Mountains—Pike's Peak.

Modification words

The word or phrase following the entry word to limit or explain its meaning is called the modification, and should be so indicated when reading and marking the entry words.

Errors, control of, 69

Subhead

The subhead is a secondary heading. The index may be subdivided down to two or three places.

Mountains—

—Pike's Peak, 28

—height, 32

Style

In book titles, omit the *A*, *An*, and *The* at the beginning of the line and add at the end. Italic type, or different style of type, is used to indicate the name of a book or publication. In literature, the title is usually run as it is, but with books it is permissible to pick a keyword, e.g., *Economics*, *The principles of*. Names—Twain, Mark, *see* Clemens, S. L.

Mechanics

Very few capital letters will be used in the good index. The most conservative style of using capitals for proper nouns, states, places, etc., should be observed.

Page numbers at the end of each line are easier to read and will save strain. This is the reason most indexes are set two column. When there is more than one volume, the index will be at the end of the last volume, with page numbers prefixed with the volume, as II, 380.

Double spacing between each letter group, with possibly the first word in the new series in a heavier type, will make easier reading, as

Foundry, size, 48

Gage, classification, 26

design, 28

Dates should be in italics or some other different type style. Inclusive material may be marked thus,—gages, accuracy of, 4-12. The entry word should not be repeated when there are several subheads appended, although the latter should be indented.

When the index is arranged to show paragraphs as well as pages, the differentiation should be clear, as

Wage scales, 245, 78

meaning paragraph 245 found on page 78.

All entries should be in some definite order of arrangement, usually alphabetical, although for various types a chronological or logical order may be followed. In alphabetical order, the modifying word following the entry word does not figure in the alphabetizing, as

Light, stellar

Lightning

Sometimes the arrangement of subheads is in descending order of importance as

Income tax

—budget proposals

investments

revisions

Compound words are used as a whole.

The division or arrangement of the index should be on the basis of definite service to the reader. This discussion is not designed to treat the subject of indexing completely, but rather to show a few of the possibilities that might be of aid in a simple case of indexing. When the report is of such size that the indexing becomes involved, the writer should make a more complete study of the problem. A list of references will be found in the bibliography in the Appendix.

CHAPTER XVI

STYLE

I. Importance of Good Style—II. Meaning of Good Style—III. Factors Controlling Style—IV. Qualities of Effective Presentation: A. Readability; B. Mechanical Make-Up; C. Orderly Arrangement of Topics; D. Length of the Report; E. Clear Perspective; F. Accuracy and Practicability—V. Adaptation—VI. Appropriate Diction—VII. Persuasive Style—VIII. Fitting Tone—IX. Rhetorical Qualities: A. Clearness and Completeness; B. Conciseness; C. Emphasis; D. Concreteness—X. Faults of Style.

Of making reports in business, there is no end. Research has become the order of the day in progressive concerns. Still, there is a wide gap between the number of reports written and those that are acted upon, and to every report that fails of adoption, there can be charged just so much waste in industry.

IMPORTANCE OF GOOD STYLE

We look for a reason. Reports are not acted upon either because they are not read, because they are not *clear*, because they are not *convincing*, or because they are not *persuasive*. The first cause, in either case, may be the same—they are not interesting. Only when extreme self interest makes it necessary will the busy executive read a report that is dull and tedious. This statement needs emphasizing, for it runs counter to much that has been written on report writing in this tenor. "It (a report) goes to an interested reader; therefore the factor of interest is not of great importance. It does not directly attempt to secure action, as a rule, though action may result from it. It does not need emotional qualities, and in fact should be as unbiased and unemotional as possible."

The factor of interest is of greatest importance. It is true that the client or executive who authorizes the report will be interested in the subject matter of the report. The writer has

that in his favor. However, he has it in his power to make or kill the interest of the subject matter in the way he writes. In other words, the style of the writing may make the report a success or a failure. The writer may select inherently interesting facts, the vital fact, the unusual fact, and the concrete. Ability to express facts, ideas, and views effectively and to drive home one's arguments convincingly is, then, so important that a plea may well be urged for the closer study of style in the writing of reports.

As Mr. R. U. Fitting says,

"While the importance of skillful presentation is universally realized today among men of affairs in respect to business correspondence and publicity material, it is only beginning to be considered in connection with report making.

"But the fact is, as any experienced reader of reports discovers, that fully 50 per cent of the effect of a report depends on how it is written—that is, how the material is selected, arranged, and presented. Men who have to prepare reports need to possess, whatever their other qualifications, the ability to write."¹

By making a report interesting, the writer will greatly increase its possibility of acceptance.

MEANING OF GOOD STYLE

The question of what is good style in business reports at once presents itself. To answer it, we may consider two widely accepted meanings of style. "*Le style c'est l'homme*" (the style is the man). Style in this sense means that style is an expression of the writer's personality, the quality of the writer's ideas, and the manner in which they present themselves to the writer. It has its source in a man's power and manner of perceiving, of feeling, and of living. It applies to reports in so far as a report should reflect the sincerity, the straightforwardness, and the human qualities of its writer. It applies to them in so far as modesty, tact, calmness, aggressiveness, originality, and endurance reflect the personality of the writer. The writer, moreover, wants to reflect such a personality as will inspire confidence in himself and create respect for what he has written. It is refreshing to find the characteristic of pleasing

¹ FITTING, R. U., "*Report Writing*," p. 9, Ronald Press, New York, 1924.

personality in a report. It keeps the report from being cut-and-dried, which weakens the appeal.

Style, as a reflection of personality, is, however, much more applicable to literature than to business reports. In business reports, we are concerned with the other sense in which style is employed,—style as *craft*. Style defined as craft emphasizes not so much the quality of the writer's ideas as the method of presenting his ideas. As defined by Mr. Vernon Lee in *The Handling of Words*, style in this sense "means such a manner of dividing and arranging a subject and of selecting words, as will convey the meaning of the Writer to the Reader with the least possible difference between the effect produced and that intended, and also with the least possible wear and tear of the Reader's capacity and good will."

A definition of style in *Better Business English* interprets the style applicable to reports, style defined as craft:

"Style in sports and occupations of skill is that method of activity which uniformly gives the best results with the least real and apparent expenditure of effort. Style in writing is the same."²

But the reader does not see the long grind of practice that perfected that style.

To supplement his interpretation, we need to recur again to the purpose of a report. Surely it is to carry conviction, to bring others around to our point of view, to persuade them to adopt the course we advocate,—in short to carry our point. Likewise, as the purpose of all writing, it is to make the reader think the right thought, feel in the right way, or do the right thing. To borrow an expression from Mr. Vernon Lee in *The Handling of Words*:

"The Writer urges the Reader to realize, so far as possible, the same thoughts, emotions, and impressions as himself. To do this, the writer must, as it were, draw the Reader to a certain goal along a certain road of his choice; . . . like a horse, he (the reader) has to be always kept awake, and kept extra awake whenever any new turn is coming, so that much of the craft of writing consists in preventing the Reader from anticipating wrongly on the sense of the Writer, going off on details in the wrong directions, lagging behind, or getting lost in a maze of streets."

² MANLY, J. M. and POWELL, J. A., "Better Business English," p. 275, Frederick I. Drake & Company, Chicago, 1921.

If style is a craft, the writer is constructing. He is influencing in the reader's mind the same reaction which he himself has. The writer's materials are "words and groupings of words called sentences, paragraphs, and chapters." He uses other "groupings such as passages, explanation, retrospects," and so forth. By choosing and arranging words, he is copying, so to speak, his own feelings and ideas. He is playing upon the contents of the reader's mind, for the response he gets to any particular word will depend upon the visual, audible, tactile, and emotional response which the reader's experience has given to a word. A style of writing should be developed that will be economical of the reader's time, economical of words, careful of diction, and not devoid of personality. The writer who submits a hundred page report, sometimes merely to indicate that he has collected considerable material, when the whole investigation could be condensed to at least half, is encroaching upon an executive's time and patience, and inviting a rebuke plus instructions to rewrite. Reports dictated and not revised are usually wordy, lack careful word discrimination, and adaptation.

FACTORS CONTROLLING STYLE

The purpose of the report is one of the factors controlling style. In a somewhat arbitrary way, but one that can be defended, we may say that the factors controlling the style of a business report are:

1. The purpose of the report.
2. The type of reader.
3. The conditions under which the report is to be used.
4. The subject matter or character of the investigation itself.
5. The personality of the writer.
6. Volume of data secured and available data.

How style is influenced by the purpose of the report has already been considered. The types of readers aimed at in the report may be roughly classified as an authority has classified them:

1. A banker or investor who is interested from the investment standpoint.
2. An executive reading a survey of his own organization.

3. A superior officer going over a report of a subordinate.
4. Officers or directors considering the report made by a specialist inside the organization.
5. A lay reader of the report.

In determining how the purpose of the report, the type of reader, and the conditions under which a report is to be used affects style, one can not draw a very definite line. One factor influences the other. An expression of opinion on report writing from one doing research work for a large corporation supports this point of view: "The object of any business report, as I see it, is to convey information clearly and accurately." What may be clear to some individuals will not be clear to others. So form is determined not only by the subject matter but by the familiarity of the person or persons to whom it is addressed with the subject matter. Reports circulating in a single department may be unintelligible outside that department but are perfectly clear to the man for whom they are made.

In like manner whether the tone of the report is formal or informal, whether facts and opinions are given in an advisory or imperative way will depend upon the character and temperament of the reader and the relation between the writer and the reader. When the report is intended for those with whom the writer is not personally acquainted, the style is likely to be dignified to the point of stiffness. The writer is "the writer," "the undersigned." There can be no suggestion of familiarity. If the report is to be read by a committee, a board of directors, or an organization, it will be impersonal in style. Restraint and conservatism do something to inspire confidence. Elimination of pronouns give dignity and coolness.

If, on the other hand, the report is to be read by an individual and the relation between the reader and the writer is one of friendship, the style will be conversational and natural. It may even be colloquial. For example: "House-to-house canvassing ain't what she used to be" appeared in a report of a good advertising agency to the general manager of a company. The better the writer knows the reader, the more appropriate will be individuality and originality which reflects his own personality. He may find scope for whatever skill of language he possesses. He may escape the dullness, and pedestrian quality that attends the

rule-of-thumb writing. Style may then be an expression of the writer's personality.

It has been said that the art of the writer consists less in adapting his style to his subject than his subject to his style. This is very little applicable to the business report. As long as business reports are on such subjects as prices, markets, products, budgets, personnel problems, operation, control, production, distribution, transportation, etc., the style will have the flavor of industry and the market, more than of the college and the literary magazine. The style is likely to be direct, plain, and unadorned. It will be sincere, straightforward, concise, and clear. The report is more like business than is the advertising copy or even the business letter.

QUALITIES OF EFFECTIVE PRESENTATION

Writing is for the purpose of getting thought to another mind, perhaps just to register or for information, perhaps to persuade or convince. Writing therefore entails two things: to set forth the data accurately and clearly, and to present them so as to interest and convince the reader.

In expounding the principles of effective presentation, one executive laid down the simple rules: have something to say, adapt your writing to the code of the reader, say it, and quit. Much advice that is far worse has been given.

But for the sake of younger writers of reports who do not have the background of experience necessary to make the above rules sufficient, a more specific alignment of principles of presentation will be made.

Readability

In the first place, the data should be presented in interesting, readable garb, which means the use of figures of speech, concrete terms, and specific diction. If a salesman is slouchy in appearance, or talks in an uninteresting manner, he is given scant attention. Second, the data must be set forth accurately and convincingly.

Mechanical Make-Up

For a complete discussion of mechanical make-up see the chapter under this title. Let it suffice here to say that the report

neatly set up with proper heads and subheads, double spaces, short paragraphs, italics, and underscored material for emphasis, different size type, careful use of figures, and perhaps summaries at the beginning or end of units, will focus the attention of the reader and not be tiresome, enabling him to grasp the points more quickly and will give the evidence a better chance to accomplish its purpose.

Orderly Arrangement of Topics

When a journalist has all the facts of a story and sits down to write, he summarizes in his mind so as to answer the 5 W's—who, where, what, when, why—and the H—how. The report writer will usually add another W—whither. The nature of the commission, which governs the purpose of the report, will determine the arrangement of these elements that the writer will use. He may select a logical, psychological, or chronological order of arrangement, depending on the nature of his data, commission, and readers. Orderly and systematic arrangement aids in speedy comprehension.

Length of the Report

To answer the question, "How long should a report be?" is like solving the mystery of how long is a string. To give the only logical answer that it should be just long enough to accomplish its purpose is to be guilty of a very general answer. But since every report is governed by various limitations, such as time, money, pertinent facts, nature of the commission, knowledge of the reader, etc., naturally every report is to a certain extent different from every other one, and there can be no mathematical answer.

The ability of the writer is oftentimes the controlling factor. If one writer submits a three page report, it may be too long, because a better writer could have said the same thing in one page. On the other hand, a two hundred page report might be a short one, because the average writer would have required three hundred pages to have told his story.

A report should not be given length by wordy and involved presentation. Neither should a report be made short by omitting subjects and verbs of sentences in telegraphic style. Many years ago, when everything was written in longhand, that style of writing might have been all right. In fact, in the days of pion-

earing, it might have lent an atmosphere of ruggedness to the letter or report. But today, in view of a changed civilization, that style is boorish, and although it may reduce the actual word length, it is condemned by the modern executive.

A discussion of engineering principles for the layman may be shorter or longer than for the technical man, depending on the purpose. If it is necessary to make the layman understand all the principles, the report will be long because so much will have to be explained in detail. On the other hand, if only the principles are necessary for the layman, the report will be shorter than a technical discussion of all the steps prepared for the engineer.

The only rule of length is to make the report as concise as possible, and yet be easily read, and quickly understood by the type of reader for whom it is intended. The synopsis with its condensation of the outstanding points of the report is the result of executive demand.

Clear Perspective

The perspective is the angle of approach taken by the worker, both in the investigation and in the presentation. This may be determined by the nature of the commission as given by the client, decided by the worker himself after surveying the field and classifying the elements in regard to their relation to the data, by the purpose of the report, and the particular interests and knowledge of the reader. The entire report should maintain a single perspective when possible, but when a shift is necessary it must be clearly designated or the reader will soon be in a mental whirl trying to reconcile data.

Experienced investigators must often adapt their perspective to inexperienced readers.

When it is necessary to present material in the report from more than one point of view, make clear to the reader when the change takes place. Otherwise it is like describing a boat race first from the top of a cliff, then from the boat, and then from the finish line—unless each angle is clear to the reader, he is soon lost in a maze of angles and is unable to adjust his perspective.

Data secured from house to house should not be presented with data collected in the production department, unless clearly differentiated to the reader.

Accuracy and Practicability

The basic principles of presenting the data of the investigation are accuracy of presentation and practicability or the "usableness." The essential elements of accuracy are precision of fact and statement, thoroughness, soundness of reasoning, sufficient data or proof, definite limitations, a stable point of view, adequate definition, and clear differentiation between major and minor issues. Practicability is the proper use and display of data so as to make them most useful to a designated type of reader.

Accuracy and practicability are the keynotes of effective presentation. The entire report must be presented so as to show the thoroughness of the survey and the soundness of the conclusions drawn. Everything vital should be included so that a supplementary report will not be necessary. Proper attention should be given to climatic arrangement for emphasis. The tactics of the salesman might be observed here to a certain extent, who, starting with something known and approved by the listener, thus setting up a favorable standard of comparison, will usually lead him along until he is more ready to turn down the new road when it is reached.

ADAPTATION

For effective presentation, the report must be adapted to the

- ←reader's point of view
- reader's experience and knowledge
- reader's method of thinking
- nature of the subject matter.

Primarily the reader is interested in self, whether it be for immediate or future pecuniary gain, or to acquire added general knowledge. Even the scientist, reading the strictly technical report of a fellow scientist, is chiefly interested in adding the latest contribution to his own stock of knowledge either for his own general information, or more likely, to use as a nucleus around which to make his own research.

The man who is going to open a mine will have a different point of view from the man who is going to invest in one. A report on tractors for a farm group would not have to spend as much time on the general need for tractors as if the report had

been made ten years ago, because the group has had more experience and knowledge than when tractors were first introduced. The bankers' or brokers' method of thinking regarding financial reports makes it possible and desirable to use the code of the financial world, while if a report on the same bonds were made to a possible group of laymen buyers, it would have to be altered to fit their background and purpose.

Adapting the report to the nature of the subject matter may determine whether it will be long, short, simple, formal, technical, condensed, or detailed. Some executives expect most of their reports in simple letter style, with accompanying exhibits. This style fits the subject matter, which is usually simple and confined to one or two points, and also fits the method of thinking of the readers. They grow accustomed to a certain style in these regular reports and know where to look for each item. They may prefer to have no introductory material and wish to draw their own conclusions. The reports are adapted to the executive's needs or desires, and to attempt to present a report in constantly varying style would be poor adaptation.

Frequently an engineer or plant manager in speaking of savings to be effected through some contemplated improvement is heard to insist that "it is as plain as the nose on your face." But there is an immense difference in point of view of the plant manager and the board of directors, and it is the latter who determines whether the investment shall be made.

At the risk of having certain types of research workers and report writers throw up their hands, imagination should be listed in a prominent place as a requisite for the report writer. Not the imagination which fabricates plots and details, but the imagination which comes from knowing human nature, which permits a writer to leave himself long enough to study effects on his readers, to imagine the reactions that he is not allowed to see. Writing from a wealth of knowledge and material, he should have the imagination which will tell him surely and accurately the points that will be of the most interest and benefit to the reader, and in what order they should be presented. He should be able to ask himself, "What questions are going to arise in the reader's mind that will obscure the issue or make him doubt it?" And then he should answer those unasked questions in the writing.

Business writing is not a one-character drama. It demands at least two people—the writer and reader. There can be no perfect interpretation of thought if the writer attempts to make his work a one-man act because the reader must be consulted. Reading demands time and effort. To develop a good style, the writer will consult the reader's needs and likes, adapt the writing to those things, and hence economize his time and attention. The man who will spend days making a painstaking investigation and then present the results in a careless, slipshod fashion is comparable to the genius who is unkempt in good society—he may be tolerated but is not freely accepted.

If the reader is accustomed to using concrete rather than abstract data, he will prefer charts, graphs, or tables, and merely enough supplementary words to make the meaning clear rather than to be forced to get all his reactions by words. If the reader knows the history of the case, omit it. If the point of view is “how much will it cost?”, or “when will the project be done?” direct the report toward that end.

Consideration of the characteristics of the reader will indicate whether he is quick of perception like the business man, or slow like the laboring man; whether he belongs to a class easily influenced by the opinions of others; to what extent he is depending on this report; whether there is prejudice—intellectual or emotional, conscious or latent—toward the question.

APPROPRIATE DICTION

Any study of style leads us to a consideration of the necessity of adaptation of diction to the reader. The power of every word or class of words depends upon the particular nature and experience of the individual reader or class of reader.

Technical language can be used effectively in reports to technically trained men. It makes for conciseness and definiteness of expression where it is understood alike both by the reader and the writer. On the other hand, a business report such as financial reports prepared for stockholders needs interpretation in order to be understood. All reports written for popular consumption have to be written in language adapted to the reader. The appeal of the writer is dependent upon his power to judge correctly the equipment of the reader. The writer must know

whether the training of the reader is that of a specialist or a man of affairs. In addressing the specialists in any field, a writer must use the vocabulary belonging to that field. Without the aid of the terminology which has been accepted as correct by those who are regarded as authorities in a field of knowledge, intercourse between experts is impossible. A vocabulary cannot, moreover, be acquired by chance. It can be acquired only by a determined unwearied effort.

On the subject of diction, a corporation which gives its entire time to research and the embodying of the findings in reports gives the following caution:

"Technical investigators are apt to adopt an academic manner of writing. Sometimes it is necessary to use long words in order to gain the exact shade of meaning intended, but very often a report may be edited with profit solely from the point of view of replacing long words of Latin origin with short Anglo-Saxon words.

"Old-fashioned phrases, bromides, worn-out pseudo legal expressions have no place in an engineering or business report. Such words bury the idea of the sentence in which they are used. If you find yourself using the same order of words or the same words over and over again, look up synonyms for your favorites and so eventually revitalize and enlarge your vocabulary."³

Since, as was pointed out above, the writer of the report has the responsibility of controlling the reader's feelings as well as his emotions, it is necessary that he avoid the use of excessively positive wording especially in recommendations even though he is entitled to positive opinions and judgments on matters that he has investigated. In this regard, the same corporation quoted above writes:

"It has occurred that a recipient of a report has been discomforted by the use of words 'must,' 'should have to,' etc., and if this is obnoxious to him, it may lead him to biased conclusions and reactions on an otherwise clear case. After all, the client is entitled to be the judge of reports on commissions he gives, and it is no reflection on the investigator to report in a suggestive rather than in a positive style, as long as he is positive and the wording is arranged to sell."⁴

³ Memo, No. 9, "Principles of Report Writing," Business Research Corporation, p. 9, Chicago, 1927.

⁴ Memo. No. 9, "Principles of Report Writing," Business Research Corporation, p. 9, Chicago, 1927.

Throughout the report, the diction the writer uses has the power to persuade or to prejudice the reader. While the purpose of the report writer is to transfer facts and opinions from one man to another, his diction unconsciously, for the most part, is transmitting orders concerning how to act or at least how to feel.

"The employment of *my* and *our* instead of *yours* and *theirs* often decides a question unfavorably as does such words as *must*, *should*, and *have to*. Diction of reports should be chosen in the mood of *remarking* and *stating* rather than of *praising* or *blaming*."

As an example of the mood of *remarking* and *stating*, let us notice the difference in our reaction to the diction that prejudices us and one that leaves us neutral in feeling. If we say, "We are *driven* by work," we have influenced a person's feeling toward work unfavorably. If we say, "We are *given over* to a habit of work," we neither praise nor blame *work*. Diction has an important part in controlling feelings.

Variety in structure,—paragraphs, sentences, diction—is a mechanical aid to interesting writing. Paragraphs are used more today to give the eyes a rest than as cut-and-dried units of thought beginning with a topic sentence and ending with a summary. Short paragraphs are easy to read, see, and to read aloud. Occasionally a topic sentence is desirable, but the following paragraph is not developed in the leisurely fashion usually ascribed to the topic sentence type. With the rapid reading necessary today to keep up with the pace, paragraphs are broken up to conform to the style of reading that people are doing most, and for easy reading. The modern executive, faced with a paragraph an entire page in length, may discard the report or "fire" the writer.

Sentences, like paragraphs, are shorter and more varied in business writing than formerly. Simple, compound, complex, balanced—all are blended to lend variety to writing.

The report writer should study books, of which there is any number, devoted to good writing. A study of journalistic style of writing will do no harm and may lend the touch of freshness and arrangement needed in some reports to add interest.

It is as important for the report writer to study words as it is for the poet. Shades of meaning may spoil a poem, but they

may mean a million dollar loss in a report. Our ideas are limited by our vocabulary. We think in terms of words—and if our word supply is limited, ideas are limited.

The report writer should know the advantage of Anglo-Saxon words over those of Latin or French derivation, or vice versa. He must know fine distinctions of meaning between words if he would avoid generalities. He must have a wide range of vocabulary if he would avoid repetition. A dictionary, thesaurus, and a book of synonyms and antonyms should be available.

Style in choice of words should not be confined to the body of the report, but particularly used in connection with the heads, since these are the gateways to the interior. Following the rule of having an active verb and specific noun in the head is a good one for reports, even though it cannot be followed literally in all cases. "Foreign purchases" lacks the definiteness and accuracy of "How United States Foreign Purchases are Made." Of course there are times when a single word or phrase subhead is sufficient, but many report writers deaden the effect of their reports by using this style exclusively when the reader would appreciate a head that tells more what is in the section.

But despite all such mechanical aids, as Horace says, "Good sense is the source and origin of good style. Hard, reflective thinking instead of loose thinking is a necessity." Report writing is not easy, because it requires concentrated thinking which is hard. When Rodin carved his statue of the Thinker, he pictured him with muscles taut because he had noticed that people who were really thinking were more or less tensed. He had discovered that people who were relaxed and said they were thinking were usually day dreaming, thinking thoughts that came to mind but not guiding them or demanding anything from them.

PERSUASIVE STYLE

The writer will do well to think of certain types of reports as persuasive writing instead of merely expository. If persuasion needs definition that of Mr. Vernon Lee in *The Handling of Words* is as applicable to business reports as it is to literature:

"Persuasion means making others feel as you wish them to feel upon a given matter, whatever it is, make them feel by its own relation to them and to their circumstances. Persuasion signifies a vote in your favor, a decision to your liking."

The report should be mainly persuasive in the guise of statement. As it has been pointed out, the diction chosen is one factor conditioning persuasion. The order in which conclusions, recommendations, and fact-finding is presented is another. If the conclusions and recommendations are such as are likely to be approved by those to whom they are presented, they may be placed at the beginning of the report. Only such data need, then, to be read as the person receiving the report thinks is necessary. If the conclusions and recommendations are likely to receive an unfavorable reaction, the data which support them should be given first. Such an order is the one which the maker of the investigation followed in forming his own conclusions. It is logical that the reader will follow the same path in reasoning.

Because the success of so many reports depends upon their persuasive qualities, one responsible for them should study the principles of persuasion embodied in texts on public speaking. As a means of suggesting these, the following points are worthy of consideration:

1. Reports should present advantages to be gained rather than disadvantages to be avoided.

2. The appeal may be directed first to selfish and then to unselfish motives.

3. Tact consists in not appearing too wise, not stirring up prejudice, in not convicting a reader of ignorance, in not putting every suggestion on the plane of duty.

4. The writer must inspire confidence in himself and respect for his personality.

5. The writer must bring the subject vividly within the experience of hearers.

6. The motive for acceptance of the report must be associated with the motives of the readers.

7. The tone of the report can be controlled by adopting a "we" and "you" attitude, by presenting suggestions through direct questions and through quotations.

8. When there is a deliberate attempt to influence emotions, the writer selects from such appeal as confidence in the writer, sympathy for the writer, prejudice against others, vanity of readers, selfish interest of readers, duty and responsibility of readers, outraged feelings of readers, and sense of fair play of readers.

9. Like the tactics of the debater, those of the writer of the report are to focus on consideration of real points at issue.

FITTING TONE

For the most effective presentation, the tone of the report must be adapted to the nature of the commission and to the subject matter. Few reports in business warrant the strictly formal tone that is sometimes characteristic of them. The brevity of some types of interhouse reports give them a formal tone, but they are usually for information and hence are not analytical in type. Certain types of public reports made principally for record are stilted. But many other public reports, such as municipal reports to the taxpayers, or the report of the chairman of the board of directors of a large corporation can well be classified as being conversational in tone. They are dignified, but not to the point of extreme formality and stiltedness.

Business writers have come to realize that if they want their reports read by the general public, they must mix them with some of the art of the other kind of business writing, namely, naturalness, readability, interestingness.

When a client employs a man to make a market survey or report on the efficiency of a new machine, he really takes that man temporarily into his business. He expects and has a right to receive a certain amount of humanness in the report submitted.

The tone of the report should, of course, be *impartial* if it would carry weight, because a "colored" report, like a "colored" newspaper story, is soon detected by the discriminating reader, and the entire work is discredited. The tone should be *tolerant, broadminded, fair, dignified, sincere*. Recommendations should be made in an *advisory* rather than imperative tone. It may look foolish to the writer for the client not to accept certain things, but intolerance with his stubbornness must not appear in the tone of the report. Let the recommendations be *positive* in tone, but leave the prerogative of the decision with the reader, where it properly belongs.

RHETORICAL QUALITIES

Clearness and Completeness

Clearness in a report depends first upon a clearly defined object, the selection of only such material as contributes to the accomplishment of the object, which means of course exclusion of irrelevant material, and a degree of completeness of material suited to the special readers. These first two points need no comment. The last needs comment even at the expense of reiteration. The degree of completeness in the text necessary to effect clearness is determined by the information and training of the reader for whom the report is intended. A report that would be clear to the head of a department in a company such as Swift and Company might not be clear to one of the chief executives of the company. Clearness of issues depend on the quality of research done. Clearness of effect depends on the way data are presented.

In the matter of adaptation, the two great distinctions are between experts and non-experts or between technically trained men and laymen. The facts may be the same whether one is appealing to an individual or a group.

Completeness is to be judged partly in reference to the object which the report is to accomplish. What facts were vital to the success of the report were decided upon when the preliminary analysis was made. The success depends upon rigid selection of pertinent material which means equally rigid exclusion of everything else. The final test of completeness is whether or not the report is long enough to accomplish the desired purpose. It should not be long enough to become tedious.

Clearness through rhetorical structure has to do with schemes of arrangement. As has already been explained in the chapter on outlining, reports follow narrative, chronological, spatial, logical, or psychological plan. By the last term is meant topics arranged according to their acceptability, familiarity, interest, and importance. The order to be adopted is inherent in the nature of the subject, modified by the necessity for adaptation of presentation to the particular reader. The plan for a market survey can be spatial because certain sections of the country or of a city may be studied. The progress of an undertaking lends itself to a chronological order. A report upon a plant can

follow the narrative order if a trip through a plant is assumed. The psychological order rests upon the writer's desire to order the emotional reactions of the reader.

Whatever scheme of arrangement is used, it is drawn up before the writing of the report is begun. It is forecast in the outline and followed in the text. Clearness is dependent also upon anticipatory paragraphs, clear demarcations of sections of the report by center headings, side headings, and italics for paragraph headings or groups of paragraphs; numerous guide posts; and adapted vocabulary. The guide posts may be transitional paragraphs, sentences, expressions, or single words. Sometimes a guide post anticipates what is to come. Sometimes it looks backward and gives meaning to what has gone before.

Like a camera, the final production of a man's pen reflects his thinking ability. An involved, confused report is frequently the product of that type of brain. To the man who finds his report constantly going up a blind alley, so to speak, probably the best advice is to go back and clarify the issues in his own mind before he can hope to make them clear on paper.

Conciseness

From the mass of data collected, the wise writer will include in his final report only the most pertinent material. The reader wants conclusions and recommendations and such supporting data as are absolutely necessary. He is not interested in the amount of time spent as reflected by a mass of non-essential data. What to omit often is a big problem to the worker who has lived with his material for a long time, and it sometimes is necessary for him to get away from it for an interval in order to change his perspective.

Emphasis

Effective presentation is aided by the proper selection of major points and giving them emphasis. Emphasis is secured by position, space, striking phraseology, iteration, climax, figures of speech, comparisons, varied sentence structure, and diction.

When the nature of the commission or instructions of the client indicate that the reader will be more interested in the results than in the details of the investigation, the conclusions are given a position at the beginning of the report, or at the

beginning of each unit. If the report is of a scientific nature in which the reader will want to read all details carefully and draw his own conclusions or check the writer's, important conclusions are placed at the end.

The relative importance of data to the accomplishment of the purpose becomes apparent when the data are collected and analyzed. This relative importance of data is made apparent by the amount of space the writer assigns to them, or the position assigned to any point. The greatest enemy to proportion is the desire to include material according to the amount of difficulty incurred in getting it. In every case the reader is concerned with the fact deduced from the data more than with the data; with the fact, more than with the difficulty in obtaining the fact.

The report which overemphasizes trivial points marks the writer as having a poorly trained mind—and possibly no imagination.

Analyzing good reports to see how effects are gained in sentences, paragraphs, and the report as a whole is excellent practice for the new report writer.

Concreteness

The success of the report depends to a great extent upon vividness of presentation, and vividness of presentation upon concreteness. Concreteness comes from the specific word, the specific phrase. It comes from illustration, typical instances, and example. The value of graphs and charts as a part of the language of presentation of ideas has been fully established. To add vividness, there is nothing so effective as figures of speech such as similes, metaphors, analogies, and personifications; nothing brings a clearer image to the mind than a vivid word picture when the subject warrants it. For example, one man expresses the idea that a good report "hangs together well" by saying, "Ideas follow each other like elephants in a circus parade: tail to trunk, tail to trunk, stepping up gradually to a climax."⁵ Valuable use can be made, too, of similarities and contrasts as well as of analogies.

⁵ Memo. No. 9, "Principles of Report Writing," Business Research Corporation, Chicago, 1927.

FAULTS OF STYLE

“O wad some power the giftie gie us, etc.”—should be applied to report writing. It would disclose:

1. Limited vocabulary, obscurity, verbosity, and redundancy.
2. Monotony in sentence structure, long sentences, awkward and incoherent sentences.
3. Excessively positive wording of which *should*, *must*, and *have to* are symbols.
4. Florid and the so-called rhetorical style.
5. Abrupt change in point of view.
6. Sensational and highly colored style.
7. Obtrusion of the writer's personality.
8. Wavering recommendation stated apologetically.

Style in business writing is that “form of thinking in words which gives the fundamental idea its greatest efficiency. Style is perfection of operation.” Every writer of a business report then, should always remember that he is not writing to display his vocabulary, his education, his wit, or his personality, but to get results. The reader will not even be conscious of the style if the style is good.

The report that has the best style is not the one that gets admiration for form, diction, etc., though it may deserve it when the mind is centered upon it, but the one that is acted upon because the facts and opinions are so well presented that the reader follows uninterruptedly and contentedly the meaning of the report without striving.

CHAPTER XVII

USUAL DEFECTS OF BUSINESS REPORTS

The essentials of business reports previously emphasized suggest the faults of business reports. Every characteristic that increases the readability, clearness, conviction, or persuasion in a report is a standard by which to judge why reports fail.

Reports that fail, then, may be grouped as follows:

- A. Those that fail because they lack readability.
 - 1. Report seems to be without point.
 - 2. Report requires too much time to find any particular point, especially the main point.
 - 3. Report is dry because the investigator includes with main points too much detail, or irrelevant material is introduced.
 - 4. Report is poorly written as to rhetorical, grammatical form, and diction.
 - 5. There is no concise summary.
- B. Those that fail because they are not clear.
 - 1. Problem is not clearly defined.
 - 2. Material chosen is not adapted to the knowledge of the reader.
 - 3. Material is not adequately analyzed.
 - 4. Material is poorly organized and arranged.
 - 5. Vocabulary is not adapted to the reader.
- C. Those that fail because they are not convincing.
 - 1. Facts advanced are backed only by personal opinion and not by sufficient proof.
 - 2. Investigation did not go far enough to get at vital question.
 - 3. Ideas and plans are impracticable.

D. Those that fail because they are not persuasive.

1. The writer rubs the reader the wrong way because of diction chosen, or order of presenting material, or because of recommendations.
2. Writer so sure of new position he forgets that the reader thinks the old way is right.

Whether or not a fault should be classed under one or another of these heads is a matter of focus. The giving of voluminous facts makes a report uninteresting and hence not readable at the same time that it obscures clearness. Poor adaptation of vocabulary affects both the clearness and the persuasive qualities of a report.

DEFECTS OF READABILITY

The faults have been presented under their main headings to emphasize the ones which are important. Perhaps greater attention may be called to each class by mentioning some of the defects which executives have enumerated in letters in answer to questionnaires sent out by the authors. In the field of readability the following faults were specified:

1. Reports are not concisely written.
2. They are written with too much or too little detail.
3. They require too much time to find any particular thing in them.
4. The grammar is confused.
5. Reports which are a compilation of shorter reports lack uniformity in style.
6. Report is not prepared with a concise or brief summary of conclusions reached.
7. Report is dry and uninteresting often because technical men dealing with technical matters miss the human point of view or because professional ethics seem to require such a style to prevent the suspicion of employing tactics of a salesman.
8. There is a piling up of figures, formulas, and curves to give an imaginary depth.
9. Research worker does not always go far enough into his subject to get at vital questions.
10. The report is poorly organized.
11. It lacks continuity.

To be specific about some of the faults in readability, we may cite the following observations on reports by executives.

“Change is universally recommended on reports of sales, earnings, expenses, and loss and gain statement, form No. 1789. They are so bulky and contain so many figures that they cannot be properly analyzed by either manager or general men. . . . It is reports like these that make the average bookkeeper tired of his job, and then we wonder why our turnover is so heavy on branch office men.”

Another authority says, “The chief thing wrong with reports, as a rule, is that they are scatter-brained, incomplete, written with too much detail or too little detail, too biased or too patchy, and without point. They give material inadequately digested whereas a report should first of all represent material properly digested.”

FAULTS PREVENTING CLEARNESS

In the field of clearness the following defects were listed:

1. Reports lack defined purpose and logical plan.
2. The impression conveyed is both vague and poorly defined.
3. There are too many shifts in the point of view.
4. Parts of a composite report or reports built from other reports do not speak the same language. There is no common unit of measurement which enables the progress of the work as a whole to be visualized.
5. Thinking is not clear.
6. There is repetition.
7. Report is so bulky and contains so many figures that it cannot be properly digested.
8. There is a failure to distinguish between major and minor issues or to show relative importance of factors.

LACK OF CONVICTION

In the field of conviction these faults were noted:

1. The person writing the report does not have enough background in the field in which he is writing to know what he is writing about.
2. He relies upon data which are inaccurate and misleading.

3. Reports give material which is inadequately digested.
4. A report gives voluminous facts but not the key facts.
5. Vital facts are concealed among the irrelevant.
6. The technique of sales methods and advertising methods is too obvious.
7. Conclusions are nothing more than hasty generalizations, false analogies, erroneous assumption of cause and effect, or reasoning in a circle.
8. Personal opinions are advanced as if they are facts.
9. Conclusions are presented without the foundation upon which they rest being made clear.
10. Ideas or plans prepared seem impractical because evidence has not been given to support facts, and no clear exposition has been given for carrying out facts.

NEED OF PERSUASION

Lack of persuasion is characteristic of reports written by those within an organization, but it has been given the greatest consideration by some of the experts in efficiency in organization and operation reporting to clients. Faults in persuasion which were pointed out are:

1. Reports are poorly gotten up either in outline or in mechanical make-up.
2. Reports are not written from the reader's point of view.
3. Reports are full of diction which prejudices the reader.
4. The plan of presenting conclusions and recommendations at the beginning does not take into account that they may rub the reader the wrong way since he has not come to them through the same steps as led the investigator to them.
5. There is undue pressure or exaggeration of facts, conditions, accomplishments.

To support the assertion that attention is being paid to persuasiveness of a report, instructions to the writers of reports for the Business Research Corporation may be cited: The worth of a report is in its capacity for selling, regardless of its preceding history; the busy executive is concerned with the results and not with the history of the investigation.

The manual on research for the Meredith Publishing Company lists the following criticisms of reports in general:

1. No clear statement of problem.
2. No concise summary.
3. Lack of thorough analysis.
4. Failure to distinguish between major and minor issues.
5. Failure to show relative importance of factors.
6. Failure to recognize difference between fact, assumption, and opinion.
7. Failure to state assumptions and opinions as such.
8. Poor organization.
9. Both sides not presented in full strength.
10. Erroneous assumption of cause and effect.
11. Hasty generalization.
12. Reasoning in a circle.
13. False analogy.
14. Unjustified argument from authority.
15. Arguments not tied together.
16. Lack of continuity.
17. Irrelevant material introduced.
18. Report padded.
19. Unnecessary support given points already well developed.
20. Lack of proof.
21. References not given.
22. Point of view shifted during writing of report.

CHAPTER XVIII

PREPARING TABLES AND CHARTS

I. The Meaning of Statistics and Statistical Methods: A. The Importance of Statistical Methods to Reports—II. Elements of Statistical Methods: A. Classification of Material: 1. Definition of classification; B. Tabulation—the Orderly Arrangement of Data: 1. Rules for statistical tables, 2. Indexing tables; C. Charting—the Representation of Statistical Data: 1. The purpose and value of charts, 2. Advantages of charts, 3. When to use charts, 4. Types of simple charts, *a*. Pictorial Representation, *b*. Maps, *c*. Bar charts, *d*. Circle charts, *e*. Histogram, *f*. Graphs, *g*. Ratio chart— III. Reproduction of Charts; A. Hectograph; B. Mimeograph; C. Photograph; D. Blueprint; E. Printing.

Statistics is the science of classifying, tabulating, presenting, and comparing statistical facts or data. It aims to take the unanalyzed data and so classify, average, and present them that the relationships of various facts will be made more evident or brought to attention. In other words, it seeks to bring out relationships. Related to statistics are statistical methods which Horace Secrist defines as follows:

“Statistical methods include all those devices of analysis and synthesis by means of which statistics are scientifically collected and used to explain or describe phenomena either in their individual or related capacities.”¹

This chapter is concerned with some of the simpler and more easily usable statistical methods for dealing with data. They are methods which involve no particular mathematical skill, and are such that everyone who deals with figures or reports will find useful, both in the preparation of reports and in their reading. More specifically, the chapter deals with the preparation of tables and charts.

¹ SECRIST, HORACE, “An Introduction to Statistical Methods,” p. 12, The Macmillan Co., New York, 1925.

The only justification for the use of tables and charts in a business report is that their use adds something of value thereto. To present a table or chart of business facts which are equally plain in themselves or which are not pertinent to the problem at hand is worse than to omit it completely. The question should always be kept in mind, "Does the use of a table, the use of a chart, or the use of an average add anything of worth to the report?"

The determination to use a statistical presentation of facts should not be made dogmatically. That is, in many cases experiments should be conducted on the data before it is definitely decided to use or not to use such methods of analysis. The bases for such a statement are numerous. For instance, in many cases the value of the data will be indeterminate until some steps have been taken in its classification and tabulation. While it is thus true that statistics should not be used unless they can be justified, in most cases they must be tried in order to determine whether they are desirable. The use of statistical methods brings out (as is intended that they should) the relationships of the facts. And it not only aids in their digestion but frequently brings out relationships which would be noticed only with great difficulty or not at all without them.

It is also true that the person in charge of the preparation of a report will naturally be more familiar with the facts than the person who is to read the report. It is natural, since he supervises their collection and brings the facts together that he should be familiar with them. Thus significant relationships which are obvious to him may be less obvious to a casual reader. It is in such cases that statistical methods, especially pictorial presentations, are desirable. Although they may not add greatly to the figures presented, a better understanding of the facts can usually be obtained by the casual reader of some pictorial representation, or some few outstanding characterizations of the mass of detailed facts.

CLASSIFICATION OF MATERIAL

Orderly, careful classification and tabulation of the data are conducive not only to a proper presentation of the data but also to sound and logical analysis. The problem of classification is

the arrangement of the facts according to their common characteristics. If the problem involves an analysis of the sales of a manufacturer, it is probable that these sales might first of all be classified into those to chain stores, wholesalers, jobbers, and possibly large retailers. If the problem is an analysis of salaries, one of the first classifications to be made would be managerial, office, and factory salaries and wages. Under the latter would come wages of direct and indirect labor.

The problem of classification is primarily dependent upon the questions to be answered by the analysis. Almost invariably the nature of the data and the purpose of the analysis will readily suggest the methods to be pursued. In fact, perhaps several methods of grouping the data suggest themselves, and the problem is then the choosing of the best or better classifications. More than one type of orderly, logical, arrangement of the material is often desirable, even though only one is used in the report. The others will often give other views on the same problem and aid materially in writing up the results. In his book on "Logic," John S. Mill aptly summarizes the purpose of classification when he says,

"The ends of scientific classification are best answered when the objects are formed into groups respecting which a greater number of general propositions can be made, and those propositions more important than those which could be made respecting any other groups into which the same things could be distributed."²

Of course, these groups should be mutually exclusive and clear-cut.

TABULATION—THE ORDERLY ARRANGEMENT OF DATA

Once the classifications of the material have been determined, the next step in its presentation is to place the material in tables which show the related characteristics of the data. Thus, tabulation is the arranging of classified material into tables. There are several reasons why the tabular form of presenting data is to be desired. It facilitates the location of specific items. If the figures were given in discourse form, it would be difficult to locate any specific fact. Again, if reference is made to the figures more than once, the table is preferred. Tables also present material in a more concise form than would be possible ordi-

² Logic, Book IV, Chapter VII, Part 2.

narily. A well-prepared table will eliminate part of an otherwise long discussion of the data. The relationship of cause and effect, which is important to analysis, can be brought out by comparison through the use of tables.

With an assumed sample of sales data, the following tabulation may be made:

TABLE V

THE VALUE AND NUMBER OF HARDWARE SALES CLASSIFIED ACCORDING TO TYPE OF CUSTOMER, CALENDAR YEAR 1928

Type of Customer	Value of Sales	Number of Transactions
Chain stores.....	\$1,777,954	24
Wholesalers.....	1,032,427	744
Jobbers.....	304,105	112
Department stores and large retailers.....	422,148	244
Total.....	\$3,536,634	1,124

This shows at a glance interesting facts relating to sales. However, by adding columns for percentages and giving more details as to size of sales, the facts are made much more interesting. At the same time the table has become considerably more detailed and complicated.

In Table VI the sales to each type of dealer are subdivided into groups according to size of sale, in addition to giving totals for each type of dealer. Thus chain stores accounted for \$1,777,954 in sales or 50.3%, but constituted only 2.1% of the transactions. Further investigation shows that 27.6% of the sales were to chain stores, which purchased from \$50,000 to \$100,000 per order, and that this constituted only 1.2% of the number of sales.

Above all, simplicity is to be desired in tabular presentation of data and often it is worthwhile to use more than one table rather than to overburden a single table. The use of columns for percentages is usually a valuable addition. In this way the relation of various items to one another and to a total is more easily grasped. However, the table should be a homogeneous entity, and unnecessary or irrelevant matter should be omitted.

TABLE VI

THE NUMBER AND VALUE OF HARDWARE SALES CLASSIFIED ACCORDING TO TYPE OF CUSTOMER AND SIZE OF SALE, CALENDAR YEAR 1928

Type of Customer and Size of Sale (Sales Volume Measured in Dollars)	Sales		Transactions	
	Value	Percentage	Number	Percentage
Chain stores.....	\$1,777,954	50.3	24	2.1
Sales under 10,000....				
10,000-50,000.....	250,732	7.1	8	.7
50,000-100,000.....	975,490	27.6	13	1.1
Over 100,000.....	551,732	15.6	3	.3
Wholesalers.....	1,032,427	29.2	744	66.2
Sales under 10,000....	736,879	20.8	730	64.9
10,000-50,000.....	200,128	5.7	13	1.2
50,000-100,000.....	95,420	2.7	1	.1
Over 100,000.....				
Jobbers.....	304,105	8.6	112	10.0
Sales under 10,000....	141,120	4.0	109	9.7
10,000-50,000.....	40,000	1.1	1	.1
50,000-100,000.....	122,985	3.5	2	.2
Over 100,000.....				
Department stores and large retailers.....	422,148	11.9	244	21.7
Sales under 10,000..	98,868	2.8	230	20.4
10,000-50,000.....	165,430	4.7	12	1.1
50,000-100,000.....	157,850	4.4	2	.2
Over 100,000.....				
Total.....	\$3,536,634	100.0	1,124	100 0

Rules for Statistical Tables

C. F. Mills in his book on "Statistical Methods" gives the following worthwhile rules regarding the structure of tables:³

1. The title should constitute a clear, concise, and complete description of the material assembled in the table.
2. Headings of columns and rows should be concise and unambiguous.
3. Variable quantities should increase from left to right and from top to bottom, when such arrangement is feasible.

³ Mills, C. F., "Statistical Methods," p. 73, Henry Holt and Company, New York, 1924.

4. Columns and rows may be numbered to facilitate reference to the table.
5. The units of measurement employed should be clearly indicated.
6. Sources should be given in all cases.
7. The table should constitute a unit, self-sufficient and self-explanatory. All explanations necessary for its interpretation should be included as integral parts of the table, or in the form of footnotes.

The data in the table should be neatly arranged. In order to give it proper balance and proportion, there should ordinarily be more rows than columns. The material arranged in tabular order should be carefully examined to note that the columns are properly indexed and divided under their headings. Whenever convenient, the information thus arranged should be placed close to the text matter discussing it or applying to it. If the material is extensive when tabulated, it may be placed on a separate page opposite the text matter.

There are some cases in which it is justifiable to put tables in an appendix and not accompanying or included in the text. In those reports containing numerous charts, and in which the charts are sufficiently plain or readable so that detailed exact figures are not essential, the tables may be separated from the charts. Likewise, when a complicated table has been found essential, and it is probable that only a few readers will be interested in the details thereof, placing the table in an appendix and referring to it in the text will frequently give a more readable and better looking report.

Indexing Tables

If numerous tables and graphs are used, some system of numbering should be devised. When only tables or charts are used, some simple numerical or alphabetical arrangement will serve for the purpose of cross-reference and identification. It is usually desirable that these be consecutive numbers or letters for the entire report, and not for each section. However, when the report contains both tables and graphs, the numbering should be such that corresponding tables and graphs are readily identifiable. Two common methods are as follows:

The tables are given Roman numerals and the charts are given Arabic numbers. Or charts are given numbers, and by adding a letter to the number the table is distinguished.

Then:

First method	Chart No. 10	Table No. X
Second method	Chart No. 10	Table No. 10a.

However, in most reports, there will not be a chart to correspond to each table. This disrupts the consecutive numbering of tables and charts alike. Consequently, the most common style of designation of tables and charts is to number each consecutively, and irrespective of correspondence of numbers. Tables and charts are then referred to each other in the text or by footnotes.

CHARTING—THE REPRESENTATION OF DATA

Charting is the representation of statistical data by lines, areas, diagrams, and drawings. Where charting is used, it is the next logical step following the preparation of tables. In most cases, it is the next logical step in analyzing and presenting statistical data.

Purpose and Value of Charts

The various types of graphic and pictorial representation are not used in lieu of tables and figures, but to supplement and emphasize them. Charts do not result in analysis, but make analysis of data clearer. A representation of the relations among various facts can readily be grasped by the mind through the eye. This method of presenting data is especially valuable for the casual reader who will look at a chart and, if it is not too complex, grasp all the essential facts without reading the table.

Not only are charts well suited to the casual reader, but to many (perhaps we can safely hazard the adjective: most) executives, graphs are desirable. The use of graphic control of production, sales estimates and actual sales, control and comparison of sales, expense budgets and actual expenses, graphic control of inventories, etc., have become common because of the marked advantages of graphic and pictorial control over the colorless figures.

Advantage of Charts

The advantages of such methods of control and comparison over a simple presentation of figures lie almost completely in the ability of the executive to grasp the significant changes in production, inventories, etc., without the difficult analysis of abstract quantities. Figures must be translated into relationships before the human mind can properly realize their significance. If one sales district has sales of \$100,000 and another of \$1,000,000, the reader must mentally calculate their relation of 1 to 10. But if two bars are used to represent the relative sales, no such mental calculation is necessary. The eye sees the relationship in the proportionate lengths of the bars.

As already mentioned, the chart does not supplant but supplements the table. In those cases where all the desired facts upon which the chart is based can plainly be stated upon the chart itself, no table is essential. But because most charts are small in size, and since their purpose often is to aid in avoiding the detailed facts and at the same time present the significant relationship, tables should be available, as supporting the charts for those readers who are sufficiently interested to desire them.

When to Use Charts

While there can be no question that charts are desirable in most presentations of facts, they should be used with discretion and sparingly. For both tables and charts, the statement may be made that their excessive or unnecessary use in a report tends to defeat their purpose. The report should not be so burdened with them that reading is difficult. Therefore, unless properly used, they easily break the continuity of the readers' thoughts. Likewise, too frequent use deadens the share of attention which the reader will give them. There is the tendency for readers of a report with too many charts to "look at the pictures."

The decision to use a chart should be determined by its value to the report and more especially to the reader. From the point of view of the report, the use of a chart should be determined in the light of the particular facts and purpose at hand. If the charts aid in developing this purpose and if the data are sufficiently important to be emphasized by the use of a chart or are difficult to explain without a chart, then it should be used.

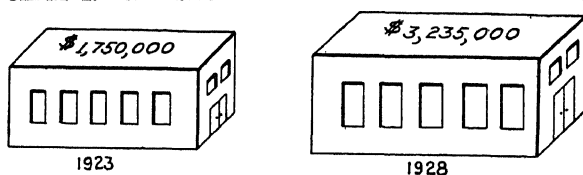
From the point of view of the reader, it should aid him in digesting facts and perhaps shorten the time necessary for reading. It is frequently of value to make up charts for various aspects of the data contained in the report in order to give the writer a better view of his facts. These charts may not be presented to the reader, but the writer may draw inferences from them and clarify his mind regarding the facts and thus be able to present a better discussion than otherwise.

Types of Simple Charts

The specific type of chart to be used to portray any given set of facts is a relative matter—but not nearly so relative as may appear at first thought. It is relative in the sense that the same set of facts may often be charted in more than one way. But there are certain types of data which can best be portrayed by certain kinds of charts. Thus, an attempt should be made to use that type of chart which is best suited for the specific classes of data at hand. It should not be forgotten, however, that the choice of any specific chart should be made bearing in mind considerations as to the reader. A report intended for general distribution among stockholders should not contain complicated charts such as might be presented to the production manager.

Pictorial representation—The use of a picture to represent statistical data is very simple, but is not without certain undesirable features. Its simplicity and advantages rest on the nature of the chart. By varying the size of the picture the comparative changes in size, value, etc., may be brought out. If the problem were to show the changes of the investment in the plant, a picture of a factory building could be used. In Chart 1 the sizes of the two plants are proportional as measured by their cubic contents and based on the values given.

CHART 1.—STATISTICAL DATA REPRESENTED BY PICTURES.

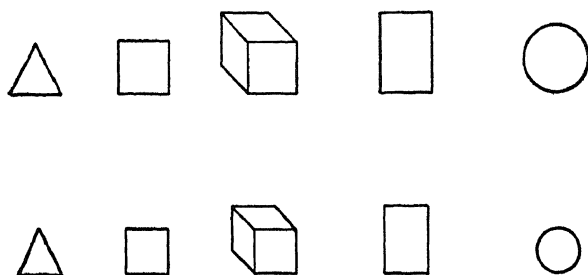


Value of Plant Investment, 1923 and 1928.

Quite similar to pictorial presentations is the use of simple squares, cubes, triangles, and other geometric figures to depict a

group of facts. The same changes in plant investments might have been shown by any of these figures which are proportional according to their areas, cubic content, diameter, etc.

CHART 2.—SIMPLE GEOMETRIC FIGURES FOR REPRESENTING DATA.



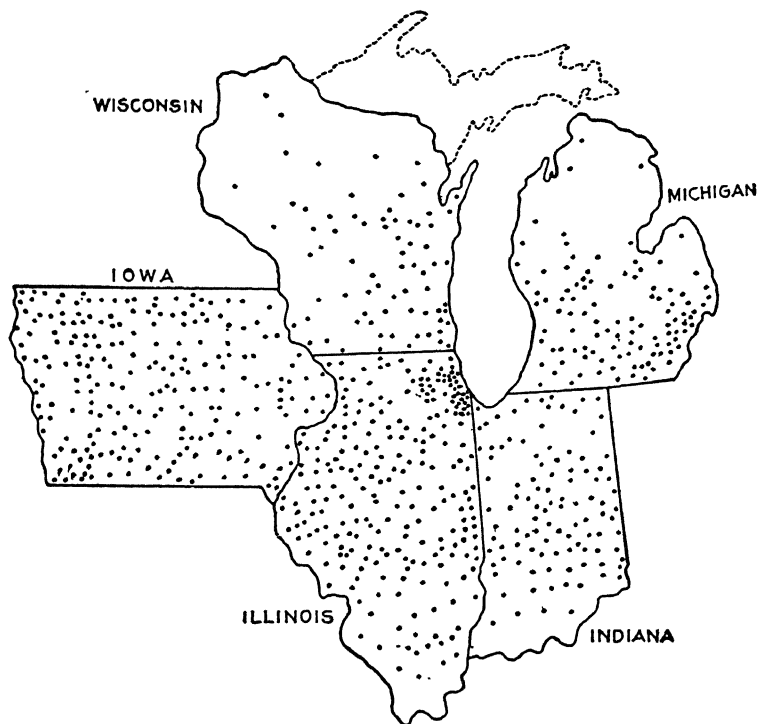
As a whole, these all have about the same advantages and disadvantages for graphic use. Their advantages are their simplicity and the directness with which they convey a picture to the reader. However, because they have more than one dimension, they are apt to be confusing at times. In the picture of the factory building, the reader might interpret the relative change in value of the plant to be indicated by the change in the relative heights of the two diagrams, or by some other dimension. In the chart given the basis of comparison was cubic area. The same criticisms may be made of the other geometric figures. In using such diagrams care should be exercised so that there is no possibility for misinterpretation. It is usually safest to specify just what dimension is the basis of comparison. This dimension may be height, area, diameter, angle, tangent, etc.

Maps—When the data to be presented follow some natural geographic divisions, the use of a map should be considered. The area may be a county, state, group of states, etc. By plotting the facts directly upon the map, a definite idea is given which relates the facts to their particular geographic territory.

Chart 3 is an illustration of the use of a map for presenting facts. If the number of geographical divisions is large, a method of shading could be used to represent different densities of customers in the states. Likewise, instead of having a dot for each customer, one might be used for each ten or fifty, so that a great part of the details would have been eliminated. The number of

customers and percentage of them to the total may also be inserted on the map. If the number of divisions is large and the final map small, the use of shaded areas is usually preferred over the other methods since small figures and dots are difficult to read. Where shading is used, different shades will represent different densities or ranges of numbers, and a key should be given on the chart, preferably in the lower left hand corner.

CHART 3.—FACTS PRESENTED BY THE USE OF A MAP.



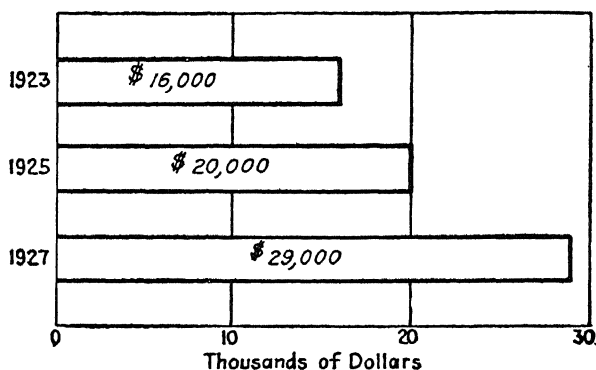
Retail Dealers in Sales District Number 10.

Bar charts—Various combinations of representing facts are possible with the use of bars. The length of the bars is used to represent the magnitude or size of the data. It is, of course, possible to vary the width of the bars and thus show changes in more than one dimension, but this is not desirable generally as it opens the way to possible distortion of the facts desired to be portrayed. The bars should be of moderate width compared to their height, and so separated from one another, that variations of black and white spaces will not cause optical illusions.

A simple comparison of labor costs for successive years is given in Chart 4 below. It is a comparison of magnitudes based on the length of the bars.

It would have been perfectly all right to have the bars in a vertical position instead of a horizontal position; but when the number of bars is not large, and also when the description for each bar (in this chart the year) is of any considerable length, the horizontal arrangement is desirable.

CHART 4.—COMPARISON OF MAGNITUDES BASED ON THE LENGTH OF BARS.



Comparison of Labor Payroll for 1923, 1925, and 1927.

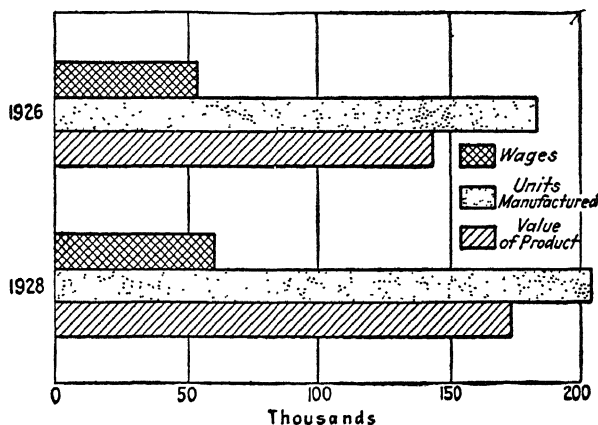
Various combinations of uses can be found for portraying statistical data with bars. Two or three different series of facts may be compared side by side, or in other combinations of the bars. Chart 5 is an illustration of the possibilities of one such combination of this nature.

As in the case of all other charts, simplicity is desired. The number of bars should be kept small; rarely should there be more than three in each set, for when the sets of bars become numerous, the chart loses its simplicity and directness of presenting facts. A simple use of different types of shading or cross hatching helps to distinguish the bars from one another and relates those which contain data of the same nature. When the number of sets of facts become numerous, the facts can be better shown in some type of charts using curves such as are discussed further along.

Still another variation of the bar chart is shown in Chart 6. It is also called the segment chart. The bar is divided into segments, each representing a different part of the data.

The basis for comparison is the length of the bar, and each segment is kept proportional to the value or quantity of the data it represents.

CHART 5.—STATISTICAL DATA PORTRAYED BY VARIOUS COMBINATIONS OF BARS.



Production of Product X Compared with Wages, 1926 and 1928.

The same type of bar chart may be used for comparison of similar data for two or three years. Since the actual values may vary from year to year and complicate comparison of the relative values of each item for the various years, the use of percentages is desirable. The use of revenues as a total of 100

CHART 6.—COMPONENT PARTS OF DATA REPRESENTED BY THE SEGMENT BAR CHART.



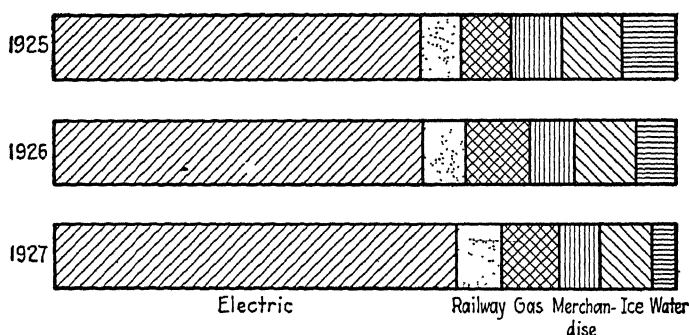
Disposition of Total Bell System Revenues for Year Ending December 31, 1928.

per cent would allow the bars to be kept uniform in size and the relative changes in items making up this total could be shown. This is illustrated in the next chart. As in the case of the previous chart, the representation of data for more than a few years by this method is not advocated.

Circle charts—In some respects, the circle chart is similar to the segment bar chart described above. Both are suitable for

illustrating figures which constitute the component parts of some whole unit. In Chart 6, the whole unit is gross revenues for 1928 and the component parts are operating expenses, maintenance, depreciation, etc. The same facts could have been shown by a circle chart. The circle is divided into segments so that its component parts are proportional to the relative sizes of the values or quantities of the data. By reducing the facts to percentages, the entire circle can be used to

CHART 7.—COMPARISON OF DATA FOR SEVERAL YEARS REPRESENTED ON THE SEGMENT BAR CHART.



Sources of Gross Earnings of the Middle West Utilities System, 1925 to 1927,

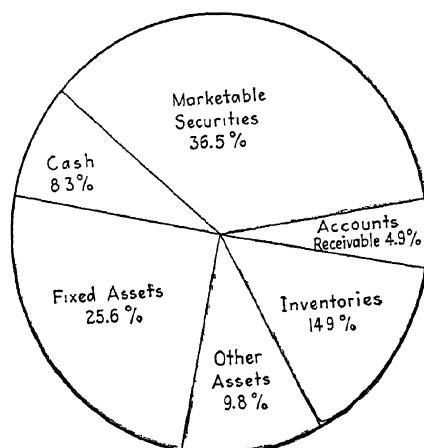
constitute one hundred cents or a dollar, and the component parts of the circle show to what uses the particular dollar is devoted. The ordinary percentages are well adapted to the use of the circle chart, and similarly because of the ease of comparison, it is well suited to the use of the actual figures either alone or in conjunction with percentages. Chart 8 is a common use of the circle chart.

The circle or pie charts are not well adapted for comparison to one another. Like some of the geometric figures and pictorial representations previously discussed, it is always difficult to compare one circle with another, to gauge its area, diameter, or whatever the measure of comparison is. Where only one circle is used, the relation of various arcs or segments is easily grasped.

With the aid of a protractor, a circle may easily be divided into the number of sections desired. The protractor will measure the degrees of any desired angle. By way of illustration,

suppose that two quantities are to be shown in the circle, one of \$250,000 and the other of \$750,000. By taking one-fourth (250,000 to 250,000 + 750,000) of 360 degrees, or 90 degrees, one segment can be laid off on the circle, and by taking three-fourths of 360 degrees, the angle for the other segment is obtained.

CHART 8.—PERCENTAGES REPRESENTED BY PIE CHART.



The Investment of the Maytag Company Dollar, December 31, 1928.

The Frequency Distribution ⁴

The handling of large groups of data in which the time element is not an essential factor can very often be best accomplished by the use of frequency distributions. The frequency distribution is a statistical device which has been most commonly used in the biological and educational fields, and its usefulness does not appear to have been realized by people using business facts until recently. As its name implies, it is a logical arrangement of data according to its frequency or some common unit of measure. That is, the essential characteristic of this statistical device is that it measures the number of cases or occurrences of certain kinds and enables detailed facts to be reduced to certain groups which are readily grasped by the mind. It will be found useful in summarizing data where some average is used. The average will serve the purpose of giving some one

⁴ Although not belonging here in a logical order, it has been deemed best to discuss this under the topic of charts and in its present position.

characteristic quality for the data, while the details of the arrangement can be given satisfactorily by the distribution.

Purpose and use—The purpose and use of frequency distribution can be made plain by the following example. An interesting application of the use of this type of analysis is found in personnel work. As a working basis, assume that the data are available as to the length of employment of thirty employees in a machine shop, as follows:

TABLE VII

LENGTH OF SERVICE OF THIRTY MEN EMPLOYED IN THE MACHINE SHOP

Years	Months	Years	Months
5	1	5	5
4	2	13	2
8	8	7	6
..	3	2	7
11	2	3	2
1	3	4	4
2	1	3	8
6	5	6	1
1	1	2	9
4	3	2	11
2	6	3	1
1	4	..	4
..	8	3	2
1	5	3	6
2	3	2	8

Such a group of facts in a more or less haphazard order is not conducive to analysis and clear thinking. A simple average of these could be taken; it would be only a partial answer at most to a question of how long did the employees remain at their job in this department. The next step for analysis is the orderly arrangement of the facts according to length of service.

From this kind of an arrangement it is noticeable that there is a tendency for the length of service of these men to be more common for certain years, notably 1, 2, and 3 years predominate. Since the purpose of the frequency distribution is to arrange the employees into groups according to length of service (in this case), a six month interval (called the class interval)

TABLE VIII
FURTHER ANALYSIS OF LENGTH OF SERVICE OF THIRTY MEN EMPLOYED IN
MACHINE SHOP

Years	Months	Number of Cases	Years	Months	Number of Cases
	3 } 4 }	2	3 3 3 3	1 2 2 6 }	4
1 1 1 1	1 } 3 } 4 } 5 }	4	3 4 4 4	8 2 3 4 }	1 3
2 2 2	1 } 3 } 6 }	3	5 5	1 5 }	2
2 2 2 2	7 } 8 } 9 } 11 }	4	6 6 7 8 11 13	1 5 6 8 2 2 }	2 1 1 1 1

may be tried for the data. This grouping is shown in Table VIII. The cases have been grouped into intervals or periods of six months. Thus two of the employees have worked six months or less, one employee has worked more than six months and not over one year, four have been employed more than one year and not over eighteen months. The class interval or unit of measure in this case is six months. This grouping into six month intervals fails to bring out any decided tendency on the part of the data to center around a common figure, or to show any distinct characteristic facts as to the length of employment for these men.

It is entirely possible that a six months class interval is not a natural division for the employment of these men. It appears

that employment is always light in the second half of each year. Another grouping may be tried. The following table has the data grouped into intervals of one year.

TABLE IX

FREQUENCY DISTRIBUTION OF THIRTY EMPLOYEES OF THE MACHINE SHOP GROUPED ACCORDING TO LENGTH OF EMPLOYMENT.

Length of Service		Number of Employees
More than 0 Years	Less than 1 Years	3
1 "	2 "	4
2 "	3 "	7
3 "	4 "	5
4 "	5 "	3
5 "	6 "	2
6 "	7 "	2
7 "	8 "	1
8 "	9 "	1
9 "	10 "	0
10 "	11 "	0
11 "	12 "	1
12 "	13 "	0
13 "	14 "	1
Total.....		30

The figures in the first column show class intervals into which the data are grouped. The class interval is one year. The second column contains a numerical count of the cases (frequencies) falling in the particular class interval. Three employees have been employed less than one year, four employees have been employed more than one year and less than two years, etc.

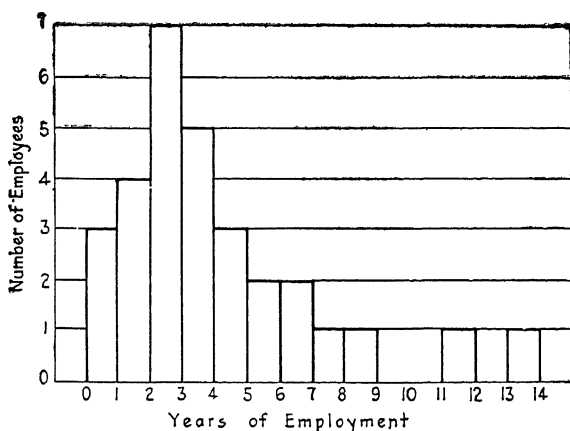
It will be noticed that the number of employees reaches a maximum of seven for those having between two and three years of service, and the number tapers off on either side. That is, the grouping of the data has brought out the very decided tendency of the data to center or concentrate around a certain figure. These facts can now, if desired, be presented in chart form.

Some interesting light is thrown on the length of employment of these men by the chart. The three highest bars, constituting 15 cases, show that more than half of the men have worked from

one to four years; a rapid turnover is implied. Various other interpretations can be made from such facts.

Frequency histogram—Such a chart is called a frequency histogram. In grouping the data there are various considerations which should be kept in mind. Ordinarily, between twelve and twenty class intervals are to be preferred. A smaller number than ten or twelve does not give enough detailed information for most purposes, whereas on the other hand, when there are

CHART 9.—TENDENCY OF DATA TO CONCENTRATE AROUND A CERTAIN FIGURE PRESENTED IN CHART FORM.



Frequency Distribution of Thirty Employees of the Machine Shop Grouped According to Length of Employment.

more than twenty class intervals the number becomes so large and detailed that the reader may not grasp them readily, since he will not be concerned too much with details.

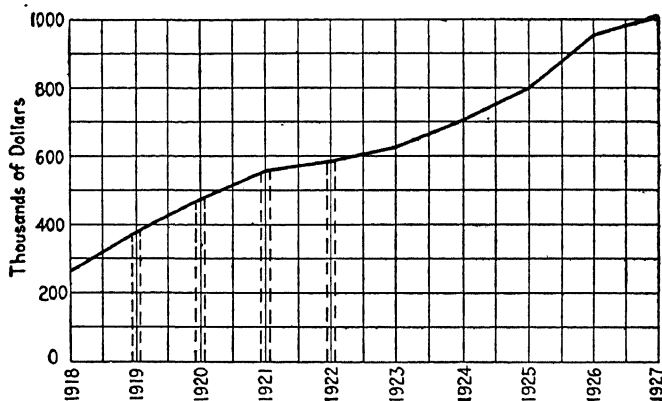
However, there are some other important considerations. The purpose of this grouping of data is to get a smooth distribution. If the data are numerous, it is quite probable that a small class interval can be used and still obtain a smooth distribution. When the sample of data is meagre, a larger class interval may be found necessary due to the greater likelihood of variations and irregularities in a small sample. Comparisons between and among different frequency distributions are facilitated by the use of percentages. That is, by taking the percentage of frequencies in each class interval to the total frequencies, the distribution may be stated as percentages, and these percentages

may then be the basis of charts. When such comparisons are made, it is best to use a common class interval.

Graphs—The methods of charting so far presented have not dealt with or been concerned with time as an important factor. Although some of the devices already presented can be used in conjunction with data involving time elements, for most purposes where the data were for a considerable number of consecutive years they are not entirely satisfactory. Series of facts in which one of the two variables is the time element are called time series. The next few paragraphs are devoted to methods of charting time series.

Time series can be charted on graphs. The graph upon which this type of data is plotted is based on the use of coordinates. Each fact that is plotted or represented on the chart has to be located with respect to two variables. One of these is usually the time factor and the other the quantity or magnitude of the facts pictured. The coordinate paper on which such data are charted is a series of horizontal and vertical ruled lines equidistantly spaced.

CHART 10.—CHANGES IN DATA ILLUSTRATED BY CHANGES IN A CURVE.



Gross Operating Revenues of the Baton Rouge Electric Company,
1918 to 1927.

The advantages of this kind of a chart over some of the others discussed are various, depending in part on the purpose of the chart. By connecting the various points plotted on such a chart, a curve is obtained which gives a continuous picture of the facts portrayed. The reader does not have to make the mental effort

necessary to compare the height of one bar to that of another in order to realize the relative value of the two. Changes in the trend of the data are easily seen from the curve of the data, making it possible to contrast earlier or later periods with the given period merely by the changes in the curve.

From Chart 10 it is possible to see the relation between the graph and bar chart formerly discussed. The height of each point plotted on the chart for each year is proportional to the height of a bar drawn from the base of the chart to that point. The equi-distant vertical lines take the place of the bars, and the distance of the curve above the base line gives the reader the relative "height" or value of the curve at any given point. However, since no bars are used, the base line must start at

TABLE X

THE DISPOSITION OF REVENUES OF THE BATON ROUGE ELECTRIC CO.,
1922 TO 1927

Year	Gross Operating Revenue	Operating Expenses	Net Earnings
1922	\$585,104	\$428,203	\$156,901
1923	634,003	470,924	163,079
1924	707,106	516,641	190,465
1925	799,614	602,984	196,630
1926	960,479	697,601	262,878
1927	1,017,110	754,894	262,216

zero and should be emphasized by a heavier line. If the base line is not shown, this fact must be indicated on the chart.

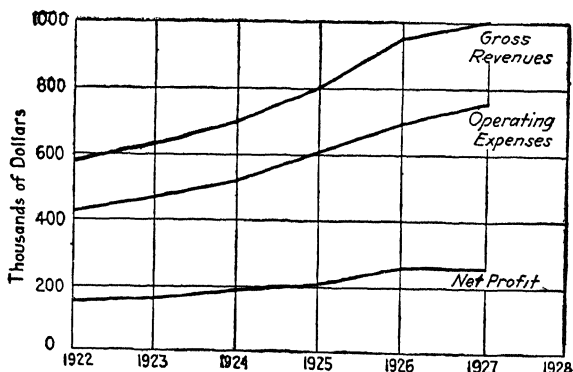
In the chart given above, the actual data are given at the top in thousands of dollars, thus making the use of a separate table unnecessary. The scale of values for the Gross Operating Revenues are given at the left, and the years at the bottom. Some detailed instructions are given on pages 325 to 331 for the construction of such graphs. The spacing of both horizontal and vertical lines does not need to be the same unless it best suits the curve at hand. The scales chosen should be such that they will bring out the fluctuations or trend of the curve without exaggeration or distortion.

A more common and more valuable use of this type of graph

is the facility it offers to the reader in realizing the relative sizes and relationships among several curves or series of data at the same time. The following brief table of data gives the Gross Operating Revenues, Operating Expenses, and Net Earnings of a public utility for a period of years. It is difficult to grasp the connection of changes of these three series of figures without some mental effort. But by plotting them on graph paper the problem is simplified. Two different methods of presenting these facts are given below. The first graph (Chart 11) is the ordinary curves on trend graph. The second graph (Chart 12) shows the changes in the component parts of these items which constitute the Gross Operating Revenues.

From Chart 11, it is easier to see the relative changes in these three curves with respect to one another. The other chart plainly shows the changes in the component parts of the total Operating Revenues.

CHART 11.—SERIES OF DATA COMPARED ON ORDINARY GRAPH.

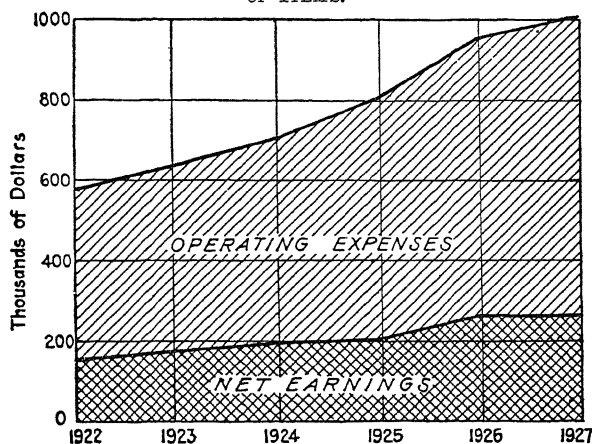


Disposition of the Gross Revenues of the Baton Rouge Electric Company, 1922 to 1927.

*The ratio chart*⁵—The ratio chart or semi-logarithmic chart, as it is often called, is suited for measuring and comparing rates of growth. In contrast to the ordinary type of graph which measures uniform increases in magnitude or quantity by uniform spaces on the graph, the ratio chart measures uniform rate of growth by equal distances on the graph. The difference

⁵ A thorough discussion of the ratio chart will be found in "The Ratio Chart," by Irving Fisher, Quarterly Publication of the American Statistical Association, June, 1917.

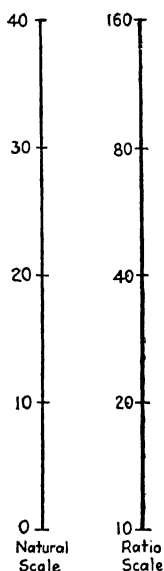
CHART 12.—BAND CHART SHOWING THE CHANGES IN THE COMPONENT PARTS OF ITEMS.



Distribution of the Gross Revenues of the Baton Rouge Electric Company, 1922 to 1927.

between the two kinds of graphs can be made plain by showing differences in the scales of measurement.

CHART 13.—COMPARISON OF NATURAL AND RATIO SCALES.

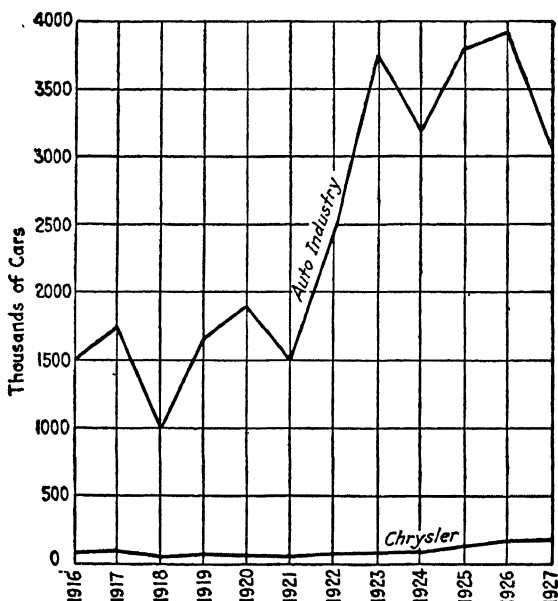


The first line of Chart 13 shows the scale for the ordinary or "natural" chart. Here each equal interval on the line meas-

ures a constant quantity. Thus a unit of measure from zero to 10 equals the same distance on the scale as from 20 to 30 or again a measure of 10 units. The natural scale measures equal amounts by equal distances.

The ratio scale, however, measures rates of growth or increase. Thus on the second line of Chart 13, the distance from 10 to 20 equals the distance from 20 to 40 as well as the distance

CHART 14.—DATA PLOTTED ON THE NATURAL SCALE.



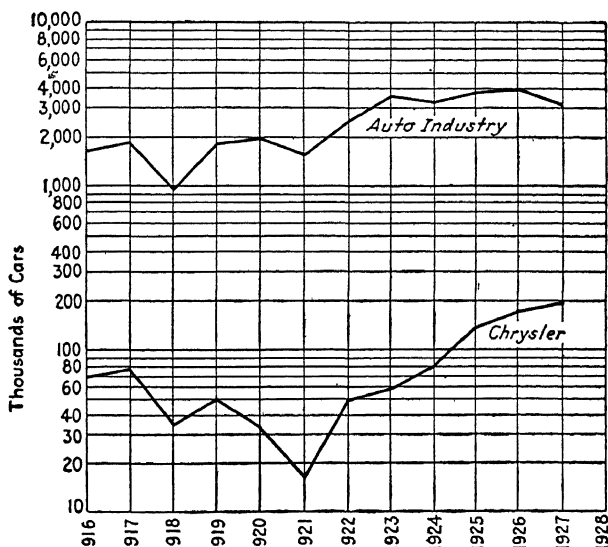
The Number of Passengers Cars Sold at Wholesale by Chrysler Corporation (and Predecessors) and the Automotile Industry, 1916-1927.

of 40 to 80. But from 20 to 40 is an increase of 20 units while from 40 to 80 is an increase of 40 units. The key to this is that the ratio chart measures "rates" of growth. Hence from 10 to 20 is an increase of 100%; from 20 to 40 is an increase of 100%; from 40 to 80 is an increase of 100%. In other words, equal distances on the ratio scale measure equal rates of growth and not equal magnitudes as does the natural scale.

The value of the ratio scale can best be made plain by an actual case. Charts 14 and 15 both have the same data plotted on them. These data, which are given in Table XI, are the number

of passenger cars sold in the United States by the automobile industry and the sales of a single manufacturer. The two series of production figures for these are charted in Chart 14, which has the ordinary or "natural" scale. Sales for Chrysler Corporation varied from 16,000 to over 200,000 cars while for the industry they varied from 943,000 to 3,093,000. The natural chart cannot show the relative rates of change in these two series

CHART 15.—DATA PLOTTED ON THE RATIO SCALE.



The Number of Passenger Cars Sold at Wholesale by Chrysler Corporation (and Predecessors) and the Automobile Industry, 1916-1927.

at the same time. In comparison to the large quantities for the automobile industry, the figures for the Chrysler Corporation are very small, and occupy only a very small portion of the chart.

Chart 15 shows the same data on ratio scale. The very close relation between these two curves is at once evident. It shows that the changes in sales of the industry and the specific manufacturer have a very intimate relation. The rates of change for these data are more interdependent than Chart 14 seems to indicate.

The ratio chart, because of its nature, is unsuited to those purposes which aim to bring out absolute changes in magnitudes of facts, but it is ideally suited for plotting several series of data

where there is considerable divergence in the size of the figures in the different series. The preceding charts illustrate this well.

TABLE XI

PASSENGER CARS SOLD AT WHOLESALE BY THE AUTOMOBILE INDUSTRY
AND CHRYSLER CORPORATION (AND PREDECESSORS), 1916 TO 1927

Year	Number of Passenger Cars Sold at Wholesale (Unit 1,000)	
	Automobile Industry	Chrysler Corporation
1916	1,525	69
1917	1,745	75
1918	943	35
1919	1,657	47
1920	1,905	34
1921	1,514	16
1922	2,406	49
1923	3,694	58
1924	3,243	80
1925	3,839	139
1926	3,936	175
1927	3,093	200

A steady upward trend of the curves on the ratio chart indicates that they are growing at a constant rate. A steady downward trend indicates that they are decreasing at a constant rate. A curve which remains level indicates no growth or decline. If the trend curves upwards more and more steeply, it indicates a greater and greater rate of growth, and vice versa for downward movement. In other words, the steeper the ascent or decline of the curves, the greater the rate of change, and if the ascent (or descent) is steady, it indicates a constant rate of change.

REPRODUCTION OF CHARTS

The method of reproducing the charts will be dependent very largely upon the number of reproductions desired. There are a number of methods, varying considerably in both their cost

and effectiveness. When only a very small number of copies of the report are being made, say about five which will be typewritten, hand copies may be made of each chart on regular ruled graph paper which is obtainable at all book and stationery supply stores in a great variety of rulings, sizes, and thicknesses. For the small number of copies, each should be made on a good quality of paper. The work should first be done in hard lead pencil for the original draft, and then either gone over with India ink or copied with India ink.

Hectograph—There are several machines on the market, for instance, the hectograph, which will reproduce up to fifty copies of a chart with reasonable legibility. The requirements are that the work be not too small or fine, that it does not need to be reduced in scale, and that a special kind of ink must be used in making the original chart.

Mimeograph—When the number of reproductions is considerably larger but not large enough to use regular printing processes, it is possible to do good work on the mimeographing machines for charts which are not too complex or too small. Except for the curved lines in the chart, it will be found possible in almost all instances to make the chart on the typewriter. All horizontal and vertical lines can be made on the typewriter in cutting the stencil, and likewise all figures and written matter can be made on the stencil for the chart. A little ingenuity and care will work out most simple charts. Of course, such charts will not be as clear as those from some of the more expensive methods of reproduction.

Photograph—The use of photographs is recommended in some instances. If the number of copies is not to be too large, and the expense is not a primary consideration, such methods of reproduction are very serviceable and accurate. Photographs may be made of a carefully drawn chart, provided the chart is large enough and a sufficiently good camera is available. The pictures reproduced can then be pasted in the report.

The use of pictures has another valuable use, aside from the reproduction of charts. Should the report be on such a subject that pictures could be taken, they can often convey more concisely and accurately the conditions than can whole pages of written material. Such pictures will be found valuable in giving ideas of progress of work in connection with construction,

etc. These photographs can be used to make "cuts" for the printing process of reproduction.

Blue-print—Charts which are going to be reproduced either as blue prints or in printing processes should be copied on tracing cloth which is a strong, durable, and translucent cloth used by draftsmen. It is available at stationery and engineering supply stores. These tracings can then be used for making blue prints. Blue printing requires special equipment and is rather expensive unless facilities are already available. This method of reproduction is satisfactory for moderately small numbers of copies.

Printing—When reports are to be turned out in sufficiently large quantities to justify having them printed, then the charts, pictures, etc., can be done by the use of the photographic method. The preparation of a clear copy of the chart on tracing cloth will ordinarily be sufficient to make a good "plate" to be used in printing. Since the chart can be reduced considerably in size, the draft of it should be larger than the printed size desired. This will make possible the use of detail on the charts. But the final size should be kept in mind, in order that reading matter, etc., will not be too small when printed. Since the photographic process does not give colors, the tracing should be done in only one color—black, preferably India ink.

STANDARDIZATION OF GRAPHIC METHODS

In order to bring about greater uniformity in graphic methods, a joint committee composed of representatives of interested groups, prepared a report recommending certain uniform practices.⁶ The report which is exceedingly concise as well as authoritative, is reproduced in part below. Its model suggestions may well be used as standards in the preparation of graphs.

⁶ Copies of this report of the "Joint Committee on Standards for Graphic Presentation" can be obtained from The American Society of Mechanical Engineers, 29 West 39th Street, New York.

The following are suggestions which the Committee has thus far considered as representing the more generally applicable principles of elementary graphic presentation.

FIG. 1.—The general arrangement of a diagram should proceed from left to right.

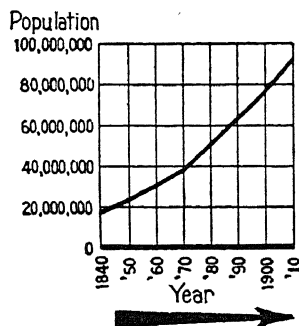


FIG. 1

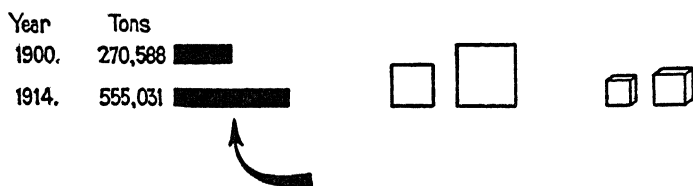


FIG. 2

FIG. 2.—Where possible represent quantities by linear magnitudes, as areas or volumes are more likely to be misinterpreted.

FIG. 3.—For a curve the vertical scale, whenever practicable, should be so selected that the zero line will appear on the diagram.

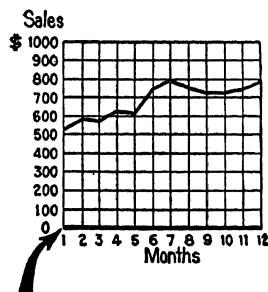


FIG. 3

FIG. 4.—If the zero line of the vertical scale will not normally appear on the curve diagram, the zero line should be shown by the use of a horizontal break in the diagram.

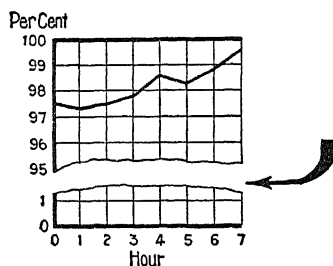


FIG. 4

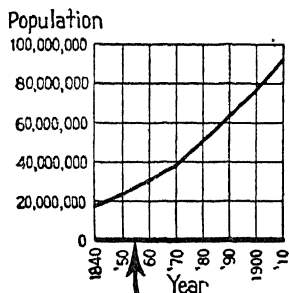


FIG. 5A

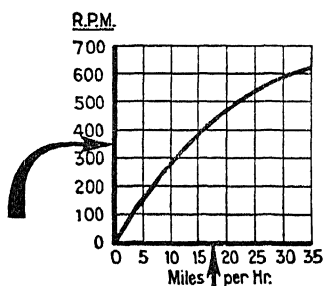


FIG. 5B

FIG. 5.—The zero lines of the scales for a curve should be sharply distinguished from the other coördinate lines.

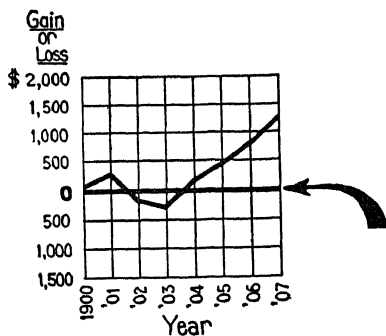


FIG. 5C

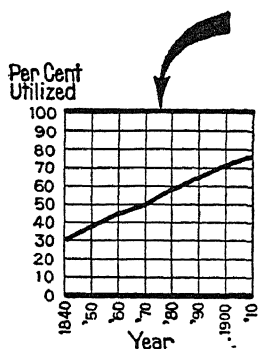


FIG. 6A

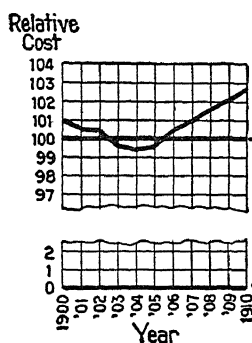


FIG. 6B

FIG. 6.—For curves having a scale representing percentages, it is usually desirable to emphasize in some distinctive way the 100 per cent line or other line used as a basis of comparison.

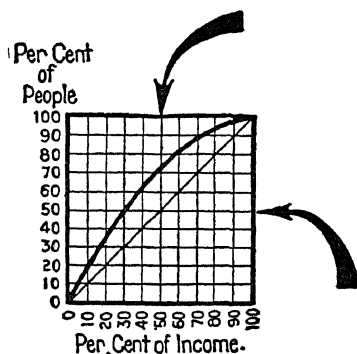


FIG. 6C

FIG. 7.—When the scale of a diagram refers to dates, and the period represented is not a complete unit, it is better not to emphasize the first and last ordinates, since such a diagram does not represent the beginning or end of time.

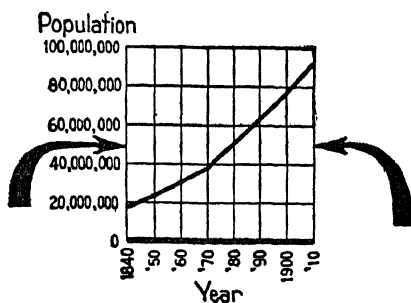


FIG. 7

FIG. 8.—When curves are drawn on logarithmic coördinates, the limiting lines of the diagram should each be at some power of ten on the logarithmic scales.

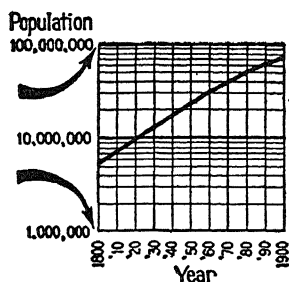


FIG. 8

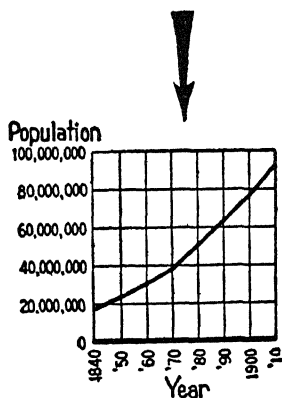


FIG. 9A

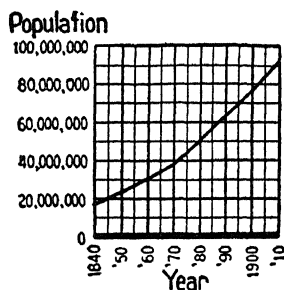


FIG. 9B

FIG. 9.—It is advisable not to show any more coördinate lines than necessary to guide the eye in reading the diagram.

FIG. 10.—The curve lines of a diagram should be sharply distinguished from the ruling.

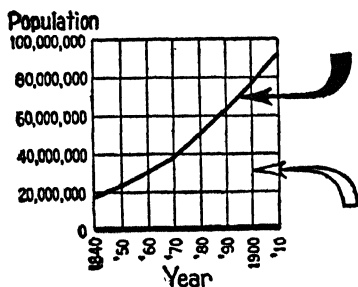


FIG. 10

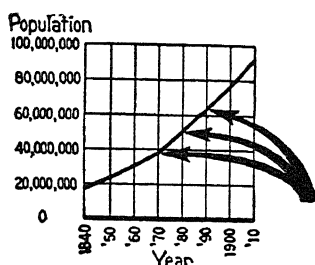


FIG. 11A

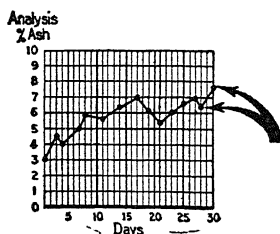


FIG. 11B

FIG. 11.—In curves representing a series of observations, it is advisable, whenever possible, to indicate clearly on the diagram all the points representing the separate observations.

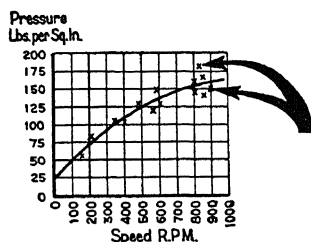


FIG. 11C

FIG. 12.—The horizontal scale for curves should usually read from left to right and the vertical scale from bottom to top.

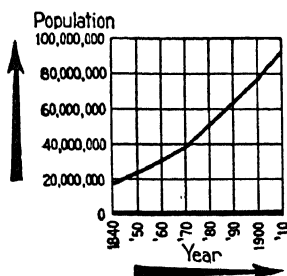


FIG. 12

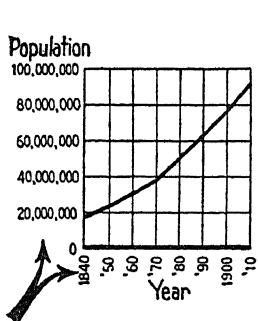


FIG. 13A

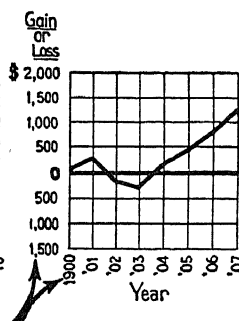


FIG. 13B

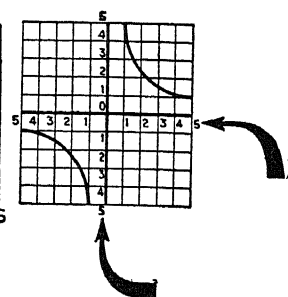


FIG. 13C

FIG. 13.—Figures for the scales of a diagram should be placed at the left and at the bottom or along the respective axes.

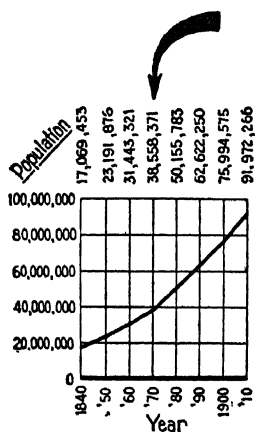


FIG. 14A

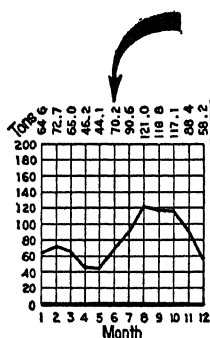


FIG. 14B

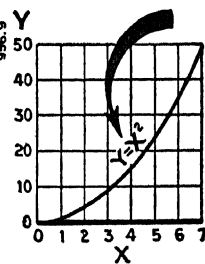


FIG. 14C

FIG. 14.—It is often desirable to include in the diagram the numerical data or formulæ represented.

FIG. 15.—If numerical data are not included in the diagram it is desirable to give the data in tabular form accompanying the diagram.

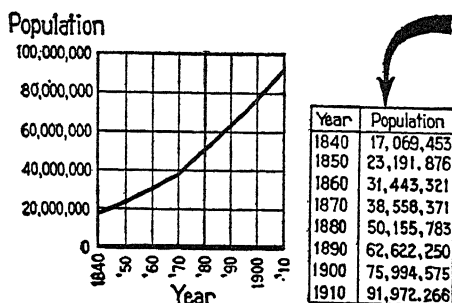


FIG. 15

FIG. 16.—All lettering and all figures on a diagram should be placed so as to be easily read from the base as the bottom, or from the right-hand edge of the diagram as the bottom.

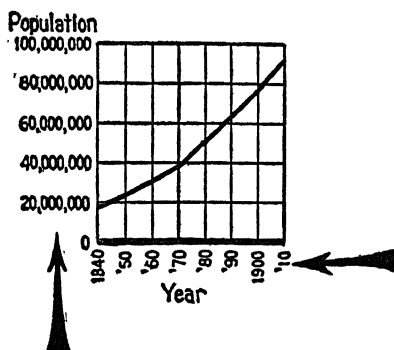
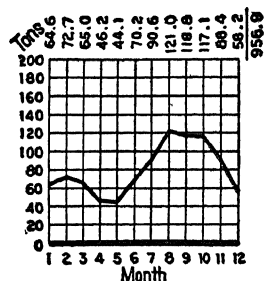


FIG. 16

FIG. 17.—The title of a diagram should be made as clear and complete as possible. Subtitles or descriptions should be added if necessary to insure clearness.



Aluminum Castings Output
of Plant No. 2, by Months,
1914.

Output is given in short
tons.

Sales of Scrap Aluminum
are not included.

FIG. 17

CHAPTER XIX

MECHANICAL MAKE-UP

I. The Cover or Binding—II. Paper—III. Typographical Presentation—IV. Following Advertising Display Principles—V. Margins and White Space—VI. Value of Display on Title Page—VII. Table of Contents—VIII. Headings—IX. Numbering—X. Spacing—XI. Paragraphing—XII. References—XIII. Form—XIV. Quotations—XV. Citations—XVI. Diagrams, Drawings, Illustrations and Exhibits—XVII. Style.

As important, almost, as content and composition is the mechanical form of the report. Its object is, of course, to make reports inviting in their appearance and make-up and to make the information and line of reasoning in them readily accessible. So important is correct mechanical form regarded for utilitarian purposes that the departments of the government, and business firms that consider research and investigation a regular part of their business, have prepared instructions on various features of mechanical make-up for those who have the responsibility of preparing the material. As an illustration, the following direction is given for the first page of the Chemical Division Reports of one of our largest industrials:

"The convenience of the organization requires that *uniform report headings* be used and that a *summary* be prepared. The summary must immediately follow the heading, and these two elements of the report together with recommendations, if any, should ordinarily constitute the first page of the report.

"Formal recommendations are not required, but it is the privilege of any man reporting experimental work to express his ideas as to what should be done about it."

"In line with the above, the first page of a typical report can be outlined as follows:

C. D.

CHEMICAL DIVISION REPORT

Name

Date

Title

*Summary**Recommendations*

Another says guiding principles of form may be stated as follows:¹

(1) The size of the report is often governed by the filing equipment. The ideal is the $8\frac{1}{2} \times 11$ size.

(2) Printing should be uniform and moderate in size, leaving as much space as is possible for the message.

(3) One original and carbon copies should give the information to all concerned.

(4) It should be arranged for marking so it can be readily referred to in the file.

(5) Body should combine ease of filing with ease of use.

THE COVER OR BINDING

Typed reports are usually bound in a substantial business-like, $8\frac{1}{2}$ by 11 cover of brown, gray, or blue. Some advertising agencies have tried to individualize reports by employing striking colors and striking color designs.

Plain manila folders are sometimes used with the papers inside clipped together. A substantial blue folder is also common. The brown and blue covers folded so as to provide for fifty to a hundred pages are provided with eyelets. Sometimes, the punched pages are tied in by gros grain ribbon $\frac{1}{8}$ to $\frac{3}{8}$ inches wide. Sometimes brass screws are used. Reports may be bound either at the side or top, though the former is usually favored.

To cite a specific case, Stone, Webster, and Blodgett bind their reports on various public utility companies in a flexible leather binding of pin seal. The pages have three eyes and are tied in the folder by gros grain ribbon $\frac{3}{8}$ of an inch wide. The

¹ ANDERSON, ARTHUR, "The Accountant, The Industrial Engineer, and The Banker," *Administration* 2, p. 158.

FINANCIAL AND
ECONOMIC CONDITIONS
IN THE
REPUBLIC OF COLOMBIA

∴

February 1927

FOREIGN DEPARTMENT
BLANK TRUST COMPANY OF NEW YORK
80 LONGVIEW . . NEW YORK CITY

title of the report is stamped in gold letters. The $8\frac{1}{2} \times 11$ bond paper is slightly transparent but tough in fibre and crisp in feeling. In the long reports, two faced black moiré paper fly leaves are used.

In firms where many reports are written, a standard cover is adopted. The cover of printed reports vary according to the requirements of the case.

The cover of the report often serves as a title page in which case the display follows the same principles as those used in the title page. If all the elements of a title page are not included, at least the title, the name of the writer, and the date of submission of the report are given. If the reports are based on data which cover some past period of time, the dates of the basic data must be given.

PAPER

The size of pages tends more and more to be standardized at $8\frac{1}{2} \times 11$ inches, sometimes 9×11 , with diagrams and maps standard size also except in unusual cases where these sizes are clearly not feasible. When a double size paper is employed such as appendix sheets or charts and graphs for illustrative purposes, it is selected with reference to convenience in folding to the right size for the text material of the report. Advertising agencies have made use of paper of odd sizes to individualize reports. Less than full-sized sheets, however, are not desirable.

A good grade of white paper should be used since the paper will receive much handling and since it has much to do with creating a favorable or an unfavorable impression. Thin paper is difficult to read. Especially is it tiring to the eyes in a long report. In fact, the carbon copies of reports on thin paper create so unfavorable an impression on one who must read them that they cause an unfavorable reaction to the content of the report. The paper of many printed reports is so thin that the printing shows through. If reports are typewritten or multi-graphed, a standard $8\frac{1}{2} \times 11$ paper of good stock is used. If the report is printed, the size and quality of paper is suited to the subject matter.

TYPOGRAPHICAL PRESENTATION

Readability is one object in view in report writing. Reports are, therefore, printed, typewritten, or multigraphed as the case requires. To secure readability, the typewriting should not be smaller than pica unless otherwise specified by the one who authorizes the report. Some executives prefer a larger type. Black ribbons are standard. Red is sometimes used for headings, but red is hard on the eyes causing fatigue to the retina. For this reason, incidentally, forms are ruled with blue rather than with red.

Since it is customary for an original to be accompanied by carbons, five carbons in some cases, the following manner of making the copy and carbons of reports is quoted: "Clean the typewriter keys and insert a new black ribbon. Use fresh carbon paper, placing the carbon side of one sheet against the back of the original copy. After typing the first page, remove the top carbon placing a new one on the bottom, and moving up all sheets. After finishing each succeeding page, repeat this process always keeping the new carbon on the bottom and the old one on the top nearest the impact of the keys."

FOLLOWING ADVERTISING DISPLAY PRINCIPLES

Display of material is a factor in the mechanical make-up of a report which all but "makes" or "breaks" its efficiency.

A report with material displayed well is as different from one giving no attention to it as is the business man dressed well from the one dressed slovenly, or the layout of advertising copy for a high-class store from that of a cut-rate store. The results of good display show that a knowledge of the principles of display is necessary.

As an approach to the study of principles of display to gain attention, one should look at posters or billboards, at car cards, at magazines and newspaper advertisements and compare the different ways in which each strives for attention.

Advertising not only uses headlines at the top of their advertisements to catch attention; it also puts center heads in the middle of the text and elsewhere. For the same reason it uses pictures, arrows, linings, borders, type groups, and white space.

It uses these methods of display consciously and with the purpose of increasing the efficiency of the message of the advertisement. Advertising desires also that it should be read and acted upon. It therefore uses judiciously every display device which it can command. So far as the aims of report writing are the same as those of advertising, i.e., to be read, to secure favorable action on the recommendations submitted, the writer of the report has the same responsibilities as the advertising man. His means, moreover, are the same.

The writer of the report wants to present the message typographically in such a way that it will be well conveyed and will be acted upon.

“Boxing” material—One of the most effective means of accentuating the importance of a portion of data is the “box” containing the material surrounded by plain lines or decorative type border.

Tables in a “box” are easier to read than if merely tabulated. The following comparative table² to emphasize the increase in number of customers is easy to read and useful:

	1928	1927	1926	1925	1924
Electricity....	268,303	250,834	232,029	205,214	182,521
Gas.....	142,105	131,729	121,783	105,877	95,695
Water.....	4,877	4,709	4,768	4,564	4,307
Heat.....	1,302	1,064	1,092	1,103	1,106
Total.....	416,317	388,336	359,672	316,768	283,629

The lines drawn between alternate items and between columns make the table easy to read. The latest and most favorable returns are put in the first column for psychological effect, and the number of items is limited.

Joseph Addison more than two hundred years ago made a plea for good display in advertising. He said, “The great art in writing advertisements is the finding out of a proper method to catch the reader’s eye. Without, a good thing may pass

² Public Service Company of Northern Illinois, 1928.

over unobserved or may be lost among commissions of the bankrupt." The same principle is true of reports.

MARGINS AND WHITE SPACE

It pays to be careful with margins. They are some of the valuable "white" space to conjure with in securing good display. Pages of reports, prints of photographs, and other illustrative material are bound together on the left-hand side. On this side, the margin should be wide. Authorities advise $\frac{3}{4}$ inch, 1 inch and $1\frac{1}{2}$ inches. There should always be between $\frac{1}{4}$ inch and $\frac{1}{2}$ inch more margin at the left than at the right to allow for binding. This applies to the body of the report as well as the title page.

There should always be a little more white space at the bottom than at the top. The reason is that the "optical center" operates. Even where the space at the top and the bottom are equal, the page may seem slightly top heavy. A top heavy page does not present a pleasing impression. Similar to the side margins, there should never be less than 1 inch at the top and $1\frac{1}{4}$ inches at the bottom.

VALUE OF DISPLAY ON TITLE PAGE

While display and neat appearance are important in the cover of the report, it assumes vastly greater importance in the case of the title page, for the value which the reader puts upon the contents of a report depends upon the effect of the first glance at the title page.

If he finds all the material on the page crowded near the top, he will feel, perhaps unconsciously, that somehow the whole report is "out of balance." It is assured that a poorly balanced sheet is a handicap to the report.

To repeat, white space should not be misused by the writer of a report. It should follow the advertiser's methods of display. White space on the title page can be made, when properly handled, to increase the reader's desire to read the report.

The layout of the title page consists of one or more units:

Unit 1 consists of the title which should be plain and inconspicuous. Often it is capitalized.

Unit 2 consists of the name and address of the author, and the date he wrote the report.

Unit 3 consists of the name of the company for which the report is prepared, and the place where the company is located.

It has already been said that the value of the report is often judged by the reader's first glance. The type space, if a single unit, is usually well centered. If it is in two units, one unit is placed slightly above the center and the other at the bottom of the page.

When title pages contain so much material that they can be called short histories, they include: title, the synopsis of the problem under investigation, the object of the investigation, and the abstract of conclusions, type of report, name of person responsible for the report, place the report is written, and the date.

In longer printed reports, a blank page precedes the title page to serve as protection. When there is a separate title page, the title should be repeated on the first text page.

So far as the title page is concerned, it pays to give careful attention invariably to the use of white space, margins, and the units of text to display.

TABLE OF CONTENTS

As was explained in Chapter XIV, where there are many headings and subheadings, as is usually the case in reports greater in length than ten pages, a table of contents and outline is very helpful. The table of contents and outline with sections numbered taken from a report on Creosote Oil in the United States shows one manner in which the elements may be displayed.

TABLE OF CONTENTS

	PAGE
Introduction	1
1. Present State of the Industry	1
2. Amount used	3
2.1 Domestic	3
2.2 Imported	3
2.3 Relative Consumption of Foreign and Domestic Oil	4
3. Prices	5
3.1 Domestic	6
3.2 Imported	6
3.3 Relative Prices of Domestic and Imported Oil	8

	PAGE
4. Foreign Source of Supply	8
4.1 Relative Importance	8
4.2 The Situation in England	10
4.3 German Combinations	14
4.4 Falsity of Rumor of General European Combination	15
5. How United States Foreign Purchases Are Made	16
Summary	16
Appendix No. 1	
Table showing Imports of Creosote Oil	
Appendix No. 2	
List of Manufacturers of Creosote Oil in United States	
Appendix No. 3	
Principal Agents Who Import Creosote Oil	

Examples of other more standardized arrangements will be found in Chapters II and XIII.

HEADINGS

The same general principles of display apply in the body of the report that apply in the title page.

The purpose of headings, subheadings, italics, underscoring, numbering of paragraphs, tabulation of points covered, detailed classification, summaries, variation in type size, indentations, etc., is to make any material easy of access to the reader, to show the relation existing between various parts, to give the report a finished appearance, to indicate thought units, or to give emphasis to certain sections. Various devices are resorted to, therefore, to make them fulfill their various functions. The Business Research Corporation of Chicago has standardized the following devices:

"Major divisions of the report are indicated by center headings, the more important subjects are set off with main side headings, and sub-subjects are shown with indented headings.

"It will usually be found desirable to number the items and paragraphs composing the recommendations so that they may be referred to easily.

"The office force can aid a great deal in producing effective reports by showing discrimination in the use of headings, single and double spacing, and length of lines."

Illustrations of set-up will make these points clearer.

Example of Outline of Analyzing Cost Accounting System.³

Center heading.	Accurate cost of specific articles Manufacturing efficiency data
Side head.	A Labor
Sub-subjects.	1. Efficiency of operation daily 2. Efficiency of a department 3. Efficiency of a class of workers 4. Efficiency of a plant as a whole 5. Result from increase or decrease of wages
	B Material
	1. Valuation in purchase price 2. Result from variations in efficiency in use
	C Manufacturing Expenses
	D Handling and transporting
	E Power

How numbering facilitates ease of reference may be seen from a section of the report on smoke abatement.

The following mechanical style is used in this report. The black side heads, as well as the paragraph numbering, make it easy to find sections and to follow the trend at a glance:

101.20 Conclusions with reference to methods and regulations employed to abate smoke:

"The preceding review of the methods and regulations employed to secure an abatement of smoke reflects a world movement and presents many facts, among which the following are noteworthy:

1. A common defect in smoke abatement ordinances has appeared in the fact that they have not been based upon a full understanding of the difficulties of the problem they have sought to solve, and where this has been the case the ordinance has proved an insufficient instrument.

2. It has been shown conclusively that—etc., etc."

An interesting variation in the use of marginal headings is their placement in the right-hand margin. The efficiency of so placing a side heading is apparent to any one who has tried to read them in reports which do not open completely.

In typed reports, center headings are usually capitalized, marginal headings are in lower case type, and underscored mar-

³ HARRISON, G. CHARTER, "Cost Accounting to Aid Production," *Industrial Management*, 56: 275.

ginal headings are sometimes capitalized and underscored. For example:

Center headings are usually capitalized.

LIMITING FACTORS

1. FINANCIAL LIMITATIONS.
2. SALES LIMITATIONS.
3. PRODUCTION LIMITATIONS.

In a number of multigraphed reports the center headings are in large capitals and underscored, and the marginal headings are in small capitals and underscored.

In the printed reports constant use is made of the black-face type for center headings.

IRON AND STEEL WORK PORTAGE DIVISION

Blast Furnaces.

Cement Plant.

Zinc Plant.

Harbor.

Some reports use all capitals for center and marginal headings. Some put marginal headings in 6 point, italics, capitals and lower case.

There is danger of overuse of capitals in reports. Capitals slow up reading because readers are not accustomed to them. For the same reason they give emphasis to a point. Type faces speak a language of their own. They should be selected to suit the subject matter and the reader.

NUMBERING

The heading and sub-heading appearing in the margin should be numbered in the customary way to show their relation to each other. The procedure is likewise recommended so that in discussion any changes desired can be segregated by referring to the paragraph number instead of reading the entire paragraph.

For example, it is far better from the point of view of ease of reference to say, "I propose to change X-A-2," than to say "I propose a change on page 18, the third paragraph from the end, where you point out difficulties, etc."

The value of numbering titles is apparent when it is desired to specify a particular section. In regard to the numbering of paragraphs, however, authorities disagree. Some approve the practice for the same reasons as are specified above. Those who disapprove give, as their reason, that a number at the beginning of a paragraph hinders the eye from reading. The point becomes apparent in this one:

I. "The numbering of the paragraphs in a report, however, is quite another matter. A number at the beginning of the paragraph hinders the eye in reading.

"It simply means that the mind must take in and comprehend, even if unconsciously, the fact that this paragraph is number 1 instead of number 2 or number 3."

All pages should be numbered consecutively so that referring back will be facilitated. When an investigation extends over a considerable time and reports are issued as the work progresses, it is best to number the pages consecutively.

SPACING

Practice varies in reference to spacing. One authority says: "Double spacing should be used in typing a report. Quotations may be written with single space."

In the same tenor another writes: "Paper may be expensive, but five minutes of an executive's time will buy lots of paper."

The arguments which support the principle that text material of typed reports should be single spaced are many. Single spacing permits almost twice the amount of reading matter on one page. It makes reference to other parts more convenient.

The purpose of the report will often determine whether single or double spacing is used. For reports that stay within an organization and are of a more or less routine nature, single spacing predominates largely because it means less bulky files. In short reports of only a few pages, single spacing is satisfactory since the reader will not have time to get tired.

On the other hand, if the report is long, double spacing saves fatigue in reading, and the resultant mixing of lines that often follows. When the report may be read on the train, double spacing is much preferable. Long reports demanding consideration from only mildly interested readers are usually double spaced to avoid the psychological effect of a solid mass of closely typed material.

All reports that are to be proof-read should be doubled spaced for the sake of legibility in making corrections.

PARAGRAPHING

The basis of paragraphing in reports corresponds to a certain extent with the first basis on which material was divided into paragraphs, namely, to rest the eye; or to relieve the reader. The history of paragraphing informs us that there was a time when there were no paragraph divisions. A page presented a forbidding picture of black type faces.

In time, some one discovered that it was easier to read a "bulk" of material if it were broken by paragraph indentations, but the division was not a rhetorical unit. The division was not made on the basis of thought divisions. The making of paragraph units into thought units came later.

In reports, paragraphs can not be said to be strictly thought units. Both thought units and paragraphing contribute to this end. Long paragraphs are to be avoided because they tend to be tiresome, straggling, and unemphatic. Short paragraphs have the merit of taking up a small division of material, and hence they are easy to understand. Paragraphs should seldom be longer than two hundred words. Usually the paragraphs of a report should be under this limit.

A word of caution is necessary in reference to the short paragraph. It can easily be overdone and result in choppy reading. Too many paragraphs produce the impression of a light superficial treatment of a subject. The skilful writer guards against monotony in the length of his paragraph.

The writer sometimes makes use of the paragraph to emphasize, list, or mark off each one of a series of related ideas. For this reason, each unit of a succession of recommendations is paragraphed. Whether the recommendation is a single sentence

or several, it is paragraphed just the same. A numeral to mark each division is of assistance to clear understanding.

Every well planned report is made up of a "succession of stages or divisions arranged in logical sequence." Every paragraph is a little stage of development of the report with its own subject, and its own internal development. It is a unit in dealing with a definite subject.

A paragraph unit must always be developed according to an orderly plan. The simplest order to follow is to begin with a clear statement of the central idea and then to develop it by definition, explanation, example, analogy, or anything which serves to make the subject clear to the reader or to convince him of the central idea.

Variety in paragraph development will help to maintain interest. Not every paragraph should be started with a topic sentence. Some paragraphs should be developed by example. Others should be developed by the use of particulars and details.

To conclude this brief treatment of the paragraph, its object is to assist the writer to break up his whole composition into parts which can be more readily taken in by the readers, and sometimes to emphasize a particular point in his development of the whole subject by treating it in a separate small division.

Of the uses of paragraphs, little can be said in a book of this scope. The underlying principles of good paragraphing are given in every good rhetoric and hand book of English, such as Woolley's *Handbook of Composition*, or Hotchkiss and Kilduff's *Essentials of Business English*.

REFERENCES*

References in business reports are made for the following purposes:

1. To refer to additional or to other treatments of points discussed.
2. To avoid repetition of the presentation of points of view of others in the research study.

* The manual on research of the Meredith Publishing Company is the source of authority for much of the information on references, quotations, and citations.

3. To show differences or similarities between the particular study and other treatments of the problem.

4. To make clear the relation of the discussion to the data or evidence used in the research.

5. To show source of data used in the text and in the tables, graphs, and so forth.

6. To indicate cross-references.

References are made in the (1) body of the text, or (2) in footnotes at the bottom of the page which bear the statement to which they refer, or (3) at the back. When made in the body of the text a black line is typed above and below the footnote to distinguish it from the text. In printed reports, footnotes are usually put at the bottom of the page in small type, or at the back. If important, they should be put in the text. There is a danger of overdoing them. They may be numbered consecutively 1-10 when placed at the bottom of each page. Footnotes should be numbered consecutively 1-100 if placed at the end of the report.

In the footnotes are put references and sources of citations, supplementary data, explanations, or discussions desirable or necessary to the ideas presented in the body of the report. They also include citations not considered important enough to be included in the main text.

QUOTATIONS

Quotations may appear in the body or as a footnote depending upon importance and relevancy. They should be clearly marked and cited accurately. Any omission may be indicated thus—, and words added by the user—(thus). The source of the quotation should be given accurately so that it may be verified.

CITATIONS

Citations are used for presentation of original material of many kinds. Their most frequent use is to give an idea or thought expression in the words of some one else because that thought or expression is unusually good. A second use is to corroborate what the writer has said by giving reference to data, analysis of data, or method of reasoning from analysis and inter-

pretation. A third use is to present agreement, disagreement, or neutrality of ideas, opinions, and conclusions. Citations may allow discussion sufficient to show exact shades of meaning. Citations are made when it is desirable to quote original material such as laws, regulations, and official rulings. They are used whenever exact words should be given rather than the writer's own account or a digest. Finally, citations are used to reproduce data in their original form necessary as evidence. Such original material may be necessary for evidence or to avoid misunderstanding.

Diagrams, Drawings, Illustrations, and Exhibits

The purpose of diagrams, drawings, illustrations, exhibits, etc., is to convey the information more clearly and more quickly than words would convey it. They are placed at points in the report, in the body, or in the appendix, according to the writer's decision as to which place they will serve his purpose best. Since a chapter is devoted to principles and preparation of diagrams, space need not be given here to discussion about them.

Style

In all matters relating to capitalization, punctuation, and spelling, either a style book should be prepared by the company or a standard book such as Woolley should be followed.

APPENDICES

- I. Marketing, Advertising, and Selling—
- II. Organization and Operation—
- III. Engineering—
- IV. Finance—
- V. Bibliography:
 - Books;
 - Magazines—
- VI. Reports Read

APPENDIX I

MARKETING, ADVERTISING, AND SELLING

The subject of reports in the field of marketing, advertising, and selling calls at once for an explanation of the reason for research in these fields which is embodied in reports and presented to management. The reason is stated in a general way in the resolution made at the second annual meeting of the National Distribution Conference:

"Resolved, that it is the consensus of this conference

"(a) That the only safe basis for advertising and marketing plans is an accurate and adequate knowledge of where and what the market is and the means by which it can be reached most economically and effectively.

"(b) That existing wastes in advertising result in large part from lack of marketing information, from unintelligent direction and correlation of advertising with the sale of the product."

Supplementary to this reason is the statement made by President Hoover who, when Secretary of Commerce said, that the elimination of waste and the improvement of methods of production is an infinitely more simple problem than it is in distribution.

To repeat, a fundamental reason for commercial research is the constant change which is taking place in the composition of the buying public. How much change is suggested by the following information which will come as rather startling news to many men in executive places who have not made a study of the public.

"The annual net addition to our population is nearly two million persons. It is not recognized as widely as it should be that in our vast population the largest single group are those persons under 19 years of age. This group numbers 49 millions based on the census estimate of a total population of 120 millions on July 1, 1928. To

the specialty manufacturer this is a most important part of his market. There are about 23 million boys and girls between the ages of 15 and 19.

"All of the men occupying executive places in industrial concerns today have a vivid recollection of the World War and regard it as an event of recent occurrence, but do they keep in mind that there are now about 23 million customers who were from one to four years of age when war was declared. These young people exert a profound influence on the family purchases, but their views are often entirely different from those of their elders in matters of what shall be bought. No intelligent merchandising plan can safely overlook the requirements of this section of the market to which is added annually nearly two million customers.

"Any concern which fails to keep in constant touch with its market is soon left behind by those who believe that the only insurance for increasing profits is to provide for change and expansion."¹

Another fundamental reason for market research is that "during the past five years, there has been a rapidly growing interest on the part of manufacturers in studying their markets. Prior to 1920, the primary problem with most manufacturers was production. Whatever could be manufactured could be sold. It was not very consequential how the product was distributed; it was enough to know that a market could be found for the output.

"Of more recent years it has become apparent that production facilities can be increased so readily that today the limiting factor is sales. Whatever can be sold can be produced. The real problem, then, is to determine how much can be sold. Since a maximum business can be builded only as each county furnishes its maximum potential, it becomes necessary to study the relative market potential of counties."²

How great is the scope of this research may be suggested by the following outline of Marketing, Advertising, and Selling:

FUNCTIONS OF MARKETING³

1. A market survey gives a better understanding of present markets, through an analysis of consumers, their location, numerical strength, purchasing power, buying motives, and likes and dislikes.

¹ STAPLETON, LEONARD, "Marketing for Sales Research," *General Management Series*, No. 81, p. 16.

² "Sales Quotas," Curtis Publishing Company.

³ WHITE, PERCIVAL, "Market Analysis," pp. 4-5, McGraw-Hill, N. Y., 1925.

2. It discovers unexploited markets, analyzes their possibilities and limitations.

It delineates the potential and the actual market for the product itself, and also for the by-products of the industry.

Specific results involving a method of approach to the market or a change in the product offered to the market.

1. It may affect the sales program.

2. It might cause the product to be changed in order to suit market requirements.

3. It may result in a more accurate correlation of purchasing with production and sales.

4. It may show why seasonal demand may be eliminated or made less important.

5. It may make clear to the minds of executives the importance of changing the distributing system.

OBJECTIVES OF ADVERTISING RESEARCH ⁴

1. Product Analysis.
2. Determination of Appeals.
3. The Product as Its Own Advertisement.
4. Consumer Analysis.
5. Market Analysis.
6. Classes of Media.
7. Essential Characteristics of Media.
8. Duplications of Media.
9. Selection of Media.
10. Analysis of Marketing Facilities.
11. Planning and Campaign.
12. Computing the Value of Advertising.
13. Budget and Appropriations.
14. Experimental Campaigns.
15. Planning the Advertisement.
16. Research as Applied to Copy.
17. Research as Applied to Layout.
18. Research as Applied to Illustration.
19. Research as Applied to Costs.
20. Research as Applied to Typography.
21. Conclusion.

⁴ WHITE, PERCIVAL, "Advertising Research," p. xi, D. Appleton and Co., New York, 1927.

THE FUNCTIONS OF A SALES RESEARCH DIVISION ⁵

1. To control the mechanism of the sales statistical division.
2. To interpret the trend of current sales activities through an analysis of the statistical information and to study all phases of the sales organization, field, and activities for the purpose of aiding through specific information.

(a) In budgeting

1. The dollar and quantity sales.
2. The distribution expenses.

(b) In the maintenance of the budgets of standards set.

The following cross section of those functions may point out the range of the research activities and their possibilities—under proper development—as an aid to sales management.

1. Sales statistics.

- (a) Determine the scope of the statistical information required to give maximum of information at minimum of cost.
- (b) Determine the degree of accuracy necessary to give sufficiently reliable results.

2. Sales Research.

- (a) Analyze routine statistical information and submit brief reports to the sales executives summing up the pertinent facts of the current sales trends and activities.
- (b) Analyze the market to determine the potential purchasing power—in quantities of the product—of cities within each sales territory by:
 1. A correlation of the economic factors exerting an incessant influence upon the community for the product.
 2. The allocation of the manufacture to the various sales territory of its share to the whole in strength of purchasing power.
- (c) By a correlation of the above study with other known factors.
 1. Management of sales districts.
 2. Ability of salesmen.
 3. Cost of selling.

Sufficient information is available to aid in the final determination of:

1. Territorial organization.
2. Sales quotas
 - (a) By item.
 - (b) By territory.

⁵ FRANCIS, DALTON E., "The Functions of a Sales Research Division," *Printers' Ink*, January, 1927, p. 64.

3. Expense quotas.
4. Special sales campaigns.
5. New product possibilities.
6. The improvement of the salesman's time spent in actual selling.

(d) Study methods and policies of:

1. Warehousing.
2. Shipping.
3. Advertising.
4. Personnel Management.
5. Training.
6. Salaries.
7. Organization.

A market report, an advertising report, or a sales report is, as these outlines portraying subject matter suggest, merely a report embodying the results of research or investigation serving the functions of marketing, advertising, and selling. A definition of each will help to recall their various functions:

1. Marketing is the control of the distribution of goods.
2. Advertising is the demand-creating function of marketing and to some extent the method of making demand effective.
3. Selling is filling an existing demand with the best goods produced for the purpose, or creating a new demand for new products.

INFORMATION NECESSARY FOR MARKET ANALYSIS

The following outline of a report made by the author for a manufacturer from the point of view of an investigator within the organization on the subject of whether or not to manufacture furniture with special features is suggestive of the information necessary for the making of market investigations or analyses.

THE PRODUCT

1. History of the product.
2. Increase in the demand.
3. What constitutes fundamentals in the line.
4. Fundamental items and the functions they perform.
5. Miscellaneous items of importance.
6. What items do dealers find to be the best sellers.
7. What are experts' specifications for each item in the line.
8. Unfilled needs of the line.
9. Classification of product as utility or convenience goods.

Competition

1. Who are the main manufacturers of the line we propose to manufacture.
2. What factors in the situation give them strength in our territory.
3. What factors in our situation would give us a foothold and strength.
4. What do they manufacture.
5. Extent to which they have features recommended by experts.
6. At what price do they sell.
7. Miscellaneous information about wholesale prices.
8. What is their method of merchandising.
9. What inducements do they offer the retail merchant.
10. Chief details of method competitors use in merchandising the line.
11. Where do they advertise, and to what extent do they advertise.
12. How much direct-by-mail selling do they do.

Consumers' Buying Habits

1. What are the consumers' buying motives for this type of product.
2. What do they pay.
3. Units of purchase.
4. Where do they buy.
5. Items of line bought according to income.
6. How they buy.
7. Factors determining buyer.

Market

1. Total potential market for a given product.
2. Estimated market.
3. Estimate of representative sales territories.
4. Divisions in which such a market should be studied.
5. Distribution of population in various sized towns.
6. Classifications of people in areas selected according to income.
7. Who are buyers in each class.
8. Estimated number of buyers of each class.
9. What dealers are buyers.
10. Where are they.
11. How many are there.
12. Amount of saturation of the market under existing conditions.
13. What territory is the logical market to open up first.
14. Facts of the specific market such as population, number of families, classifications of income, housing of the people.
15. Classification of the market as urban, small town, and rural.
16. Classification of market into trading centers and trading zones.
17. Factors unifying the market.
18. Estimated total volumes of trade in representative territories.
19. Buying habits of dealers.
20. Number of dealers.
21. Distribution of dealers.

Merchandising

1. Digest of plans of standardized types of merchandising.
2. Essence of the individual problem of merchandising.
3. Advantages and disadvantages of extensive plan of merchandising.
4. Advantages and disadvantages of intensive plan of merchandising.
5. Advantages and disadvantages of direct-by-mail plan.
6. Advantages and disadvantages of direct-to-the-consumer selling.
7. Usual sales cost of products of line.
8. Usual turnover for products of line.
9. Principles of merchandising used by some of the outstanding successes in the field.
10. Detailed knowledge of main types of merchandising.
11. Experience of individual stores in selling similar products.
12. Ideas of writers on merchandising methods in trade periodicals.
13. Ideas of advertising managers on merchandising of the line.
14. Ideas of specialists in merchandising.
15. Ideas of managers of departments in which the line is sold.
16. Method of approaching the market.
17. Advertising of the line.
18. Which of the ideas in the line are adapted to each line of merchandising.
19. Plans used by various companies in direct-to-consumer selling.
20. Advantages and disadvantages of each plan with the particular product in mind.
21. Tentative outline of plan considered most favorable.
22. Compensation of salesmen selling to dealers.
23. Authorities recommending each type of selling.
24. Products sold by each type of selling.
25. Experience of specific firms that have used a specific type of merchandising.
26. Views of specialists in each field as to the factors which should determine which specific type should be used.
27. Complete sales program of sales plan of firms selling products comparable in essentials to product under consideration.
28. Outline of plan recommended.
29. Outline of advertising campaign.
30. Outline of sales program.
31. Description of building the sales organization, training, compensation, and advancement.
32. Description of the sales canvass.
33. Lesson instructions.
34. Résumé of factors in situation which have made for success in some line.
35. History of the development of some successful firm.
36. Analysis of respects in which the plan of the successful company may be applied.

Company

1. Cost of raw material.
2. Facilities for manufacturing.
3. Cost of manufacturing.
4. Cost of overhead.
5. Cost of advertising.
6. Cost of selling.
7. Possible production schedule.
8. Potential sales.
9. The business of the plant involved.

Industry

1. History of the manufacture of the product.
2. Function which the type of product performs.
3. Potential needs in the type of product.
4. Stage of development of the industry.
5. Consumption of the line in question.
6. Present consumption in relation to possible consumption.
7. Increase in consumption of line.
8. Total capital invested in the business.
9. Present distributions of the line in question.

Outline of Consumer Buying Habits

1. Summary of findings concerning buying habits.
2. Divisions of information on buying habits.
 - A. What consumers pay, in each of the income classes.
 - B. Units of purchase in each of the income classes.
 - C. Where they buy.
 - D. Items of furniture bought according to income.
 - E. How they buy.
 - F. Buying habits of dealers.
 - G. Number and distribution of dealers.

Usually the fundamental factors which investigators consider in computing the potential market for a given product in a given territory are:

1. Population, number, and density.
2. Buying power.
3. Buying habits.
4. Literacy.
5. Economic stability.
6. Nationality.
7. Special conditions.
8. Future possibilities.

Information necessary for determining potential sales of a store according to C. F. Hansen of the W. T. Grant Company: ⁶

1. Population.
2. White population.
3. Trading area population.
4. Rate of growth in population.
5. Number of wage earners.
6. Factory payroll.
7. Value of products.
8. Bank debits.
9. Per capita revenue receipts.
10. Per capita of assessed valuation of property.
11. Building operations.
12. Number of retail establishments.

The organization and arrangement of material of a marketing report is illustrated by the outline of the Gray Aluminum Report.

Gray Aluminum Report

- I. Plan of investigation in general
 - A. Purpose
 - B. Who are interviewed
 - C. Approach and questions asked
 - D. Outstanding results
 - E. Suggestions
- II. Impressions in general
 - A. Kinds
 - B. Makes seen
 - C. Opinions on comparisons of pressed with cast aluminum
 - D. Opinions on present competition of aluminum with enamel, granite, glass, iron, and tin kitchenware
 - E. Impressions in general on the quality makes of pressed aluminum
- III. Results of interviews with 70 dealers
 - A. Order of sales of different makes
 - B. Comparison with Tribune survey order of sales in 1920
 - C. Selling points of different makes as given by dealers
 - D. Popular numbers and sizes
 - E. Slow moving numbers and sizes
 - F. Common questions asked by customers and common difficulties met with
 - G. Comments on cleaning and care
 - H. Results of interviews

⁶ *American Management Association, Sales Executive Series, No. 24.*

- IV. Result of interviews with dealers and merchandise men of State street stores on methods of various companies
 - A. Comments on different methods
 - B. Selling devices noted in stores visited
 - C. Result of 1923 Max sale (competitor)
 - D. Preference of dealers for manufacturer vs. jobber
 - E. Attitude of dealers on door-to-door selling
- V. Dealer opinions on present tendencies
 - A. Questions asked
 - B. Impressions in general
 - C. Results by figures
 - D. Comments on demand for heavy gauge ware
 - E. Comments on demand for light gauge ware
- VI. Interviews with home economic specialists
 - A. Whom seen
 - B. Questions asked
 - C. Advantages for cooking
 - D. Disadvantages
 - E. Comparisons with other utensils
 - F. What to seek and avoid in choosing
 - G. Essential articles for kitchen equipment
 - H. What utensils appear most in illustrations
 - I. Suggestions in general
 - J. Comments in detail (on each utensil)
- VII. Detailed comparison with competitors

The following outline suggests what to include and the arrangement of material in a report in a highly simplified form favored by the busy executive.

OUTLINE OF METHOD OF PRESENTING A PLANT TRANSPORTATION SURVEY

1. Investigation: why the report is submitted.
2. Recommendation: short and to the point.
3. Anticipated results: short and to the point
4. Savings: in detail for each department.
5. Expenditures: itemized and detailed.
6. Length: two or three typewritten pages.
7. Placement: first part of the report content; complete discussion and an example of present and proposed method for future reference and for plant managers to give the board of directors if requested.
8. Supplementary material.
 - (a) Test of routes and Clearances.
 - (b) Consolidation and Delivery Boys.

- (c) Some detail of operation.
- (d) Tentative program for operating department to follow after the equipment is purchased.

CHARACTERISTICS OF MARKETING, ADVERTISING, AND SELLING REPORTS

The fundamental characteristics which every business report should have are the same for the market investigation. In Chapter III these were enumerated as: readability, clearness, emphasis, conviction, persuasion, completeness, practicability. To these should be added the characteristics of *qualitative* information instead of *quantitative*.

Mr. C. F. Hansen has given emphasis to this need of qualitative information in marketing, advertising, and selling reports as follows:⁷

"The conventional idea of the sales research worker, I think, represents him as an office statistician whose beliefs are those of Pythagoras in ancient times, who had a whole philosophy of the world based on mathematics. The sales research man is supposed to sing a statistical melody all day long.

"I think that this idea of sales research functions is encouraged by the general use of all these colored maps issued by statistical organizations showing 'sales conditions' in all the different parts of the country. These colored maps, I think, are usually based upon percentage of increase or decrease in bank debits over the previous year, and it would be an assumption from the chain store viewpoint to claim that such colored maps have any use at all for indicating territorial conditions for sales. I am of the opinion that most companies should investigate carefully the reasons why they should put any reliance on such colored maps before they really use them as a basis of judgment for their own business.

"We have concluded that *qualitative* analysis of markets is for us much more important than *quantitative* analysis."

Simplicity is another quality needing to be stressed in market reports. It can be attained by very careful attention to language. The following quotation makes the point clear:

"Advocates of 'research in business' would do well to forget the long-winded and learned terms of the scientific and educational world

⁷ HANSEN, C. F., "The Place of Sales Research in the Marketing Organization," *Sales Executive Series* No. 24, *American Management Assoc.*, p. 3.

when they apply research to business. If they sincerely want to keep 'research' in good standing before the world of business they should keep it simple; talk about it in simple language and above all other considerations make no claim of power to guarantee financial success, by the use of 'research' alone."⁸

Conviction—The conviction qualities of market reports need more attention. As it has been pointed out reports of marketing, advertising, and selling are often nothing more than surveys. The purpose of many a market report is merely to collect data and to systematize them. When a report has such a purpose, it is a good report if it pictures a situation such as demand for goods, for example, accurately. Many market analyses reports, however, purport to be something more. They have, as their purpose, the discovering of the solution of a problem. For example, if a survey has revealed a latent demand and a subsequent report has, as its purpose, determining how this latent demand can be satisfied, it has become a report solving a problem instead of one portraying a situation. New demands of making conclusions convincing have entered it. The principles of making such a report convincing are of course the same as those outlined under conviction in the chapter on characteristics for any analytical report. In making the marketing and advertising report convincing, especial emphasis needs to be called again to the necessity of analyzing the problem in relation to the situation from which it has been derived to determine the elements of which it is composed; to determine the evidence required as a basis for conclusions; to sampling reliable sources for available data necessary for writing out the solution and to drawing logical inferences.

In giving a report the power to convince, nothing counts for more than describing the method. Descriptions of the method employed gives those reading the report an opportunity to follow through the procedure in the investigation and thus to prove that he is convincing himself step by step. In passing upon the report unfavorably the reader can trace his reason for not being convinced to inadequate procedure if need be, or he can discount the enthusiasm of the investigator more accurately if he knows the method of gathering facts. In short, the writer

⁸ Proceedings of Institute of Management, No. 4, p. 19.

of a report gains the reader's confidence by making very clear to the reader his plan, by adhering strictly to the plan during the process of investigation, and the careful recording of results. If he deviates from his plan in the least, he needs to explain the deviation.

Finally, conviction depends upon the quantity and quality of the evidence. If the facts and opinions essential to the subject are accurate and the inferences logically made, there needs to be only effective presentation to make them convincing.

Illustration—The marketing, advertising, and selling report has the same need of illustration as have other reports. Illustration is used primarily to give a vivid and instantaneous impression of a fact set forth by literal presentation.

SOURCES OF MATERIAL OF A MARKET ANALYSIS FOR A LINE OF FURNITURE

1. Report of the Federal Trade Commission on House Furnishing Industries, 1923.
2. Zanesville and 36 other American Communities. The *Literary Digest*, 1927.
3. Statistics of Income from returns of Net Income for 1925. Treasury Department, United States Internal Revenue.
4. Sales Opportunities 1926—A Book for Salesmen Based on the Circulation of *Saturday Evening Post*, the *Ladies' Home Journal*, and the *Country Gentleman*.
5. The Dotted Line of the *Chicago Daily News*.
6. The *Chicago Tribune* Book of Facts.
7. Sales Quotas by Counties and by Cities Over 10,000 Population, Advertising Department of the Curtis Publishing Company.
8. Sales Manual of the New York Market, *New York Evening Journal*.
9. Population and Its Distribution, published by the J. Walter Thompson Company.

OTHER SOURCES OF INFORMATION CLASSIFIED AS TO SUBJECT MATTER

1. Population—Estimates of Population, Bureau of Census.
2. Incomes—United States Statistics of Income.
3. Manufacturer—United States Census of Manufacturers.
4. Farm—United States Census of Agriculture.
5. Automobile Registrations—Count as of January 1—the Reuben H. Donnelly Corporation.
6. Retail Outlets Except Chain Stores—Count as of January—Buckley, Dement and Company, Chicago.

7. Chain Grocery Stores—Compiled by the Curtis Publishing Company.
8. Chain Drug Stores—Compiled from survey made by the Druggist's Circular.
9. Domestic Lighting Customers, January—*Electrical World*.
10. Banking—Compiled from Rand McNally Banker's Directory, January, Rand McNally Company.
11. Circulations—Curtis Circulation.

**SOURCES GENERAL IN NATURE FROM WHICH RESEARCH
ASSISTANCE MAY BE OBTAINED**

1. Advertising agencies.
2. Special research and statistical organizations.
3. Trade associations.
4. Government Bureaus.
5. Business research bureaus in colleges and universities.
6. Research departments of business schools.
7. Farm papers.
8. Trade papers.
9. Metropolitan daily papers and market surveys.
10. Chambers of Commerce.
11. County records.
12. City records.
13. Rating books.
14. Mailing lists.
15. Directories.
16. Banks.
17. Wholesalers, jobbers, and retailers.
18. Social surveys.

APPENDIX II

ORGANIZATION AND OPERATION

The place of business reports in the field of organization and operation in business is inseparably linked with the place of research in this field and with the function of organization and management in business. A series of definitions will help to make clear the interdependence of these elements:

Business has been defined as "an agency employed by civilization to assist it in advancing to higher levels of accomplishment, productivity, and culture."¹

"Management is that activity whereby economic forces (land, labor, and capital) are utilized in combination, always with a view to profit, of one kind or another."²

Management is the function of the executive.

Organization relates to the arrangement of separately functioning but mutually dependent parts.

Control relates to the sustained operation of these parts.

Management combines both these functions.

The function of research in management is to apply the method of research to the entire undertaking of organization and control.

The function of the business report is to present the findings of research in such effective form that management will marshal such forces as are necessary to act upon the solutions proposed as a result of the findings.

Since research is, therefore, not a separate function of business but a method common to all functions, reports which give the findings of research, conclusions drawn from it, and recom-

¹ Institute of the Proceedings of Management, No. 3, p. 7.

² WHITE, PERCIVAL, "Business Management," p. 79, Henry Holt & Co., N. Y., 1926.

mendations are to be found in large quantity in this division of business known as organization and operation.

"Where management," so reads an article in *Printer's Ink*,³ "formerly almost dared anyone to show a better method of accomplishing a given function, in these modern days, in many concerns, a force of research men is kept busy testing the habits and methods of tradition in the laboratory of practical research. All fundamental processes and habits are being overhauled and subjected to the closest scrutiny. Jobs are being redistributed, man power and machine brought into closer cooperation. Not only in the production end of the business is research winning out over tradition, but it is having an excellent effect upon the selling end of industry."

To attempt to present a comprehensive list of the multifarious routine reports of business and research projects which management is undertaking in the field of organization and operation would be impossible. To suggest the extent and variety of the routine reports, however, the writer of an article entitled "Nutshell Reports for the Boss" lists them in sixteen divisions and supports his classification with this statement:⁴

"It is fair to say, however, that for nine concerns out of ten, this list suggests everything that the 'boss' needs to keep in touch with as far as impersonal reports can keep him in touch."

VARIETIES OF BUSINESS REPORTS ARE NUMEROUS

The list is as follows:

1. Running inventory of stocks by: selling price, quantities; purchases, used or sold; balance on hand; by departments and lines; percentage of sale.
2. Sales by departments: charge or cash; lines; salesmen territories; percentages of total.
3. Profits—or losses (by departments; by lines; by salesmen; by territories; by percentages; by discounts taken).
4. Cost of doing business (total; by departments; by kinds of expense; in dollars and cents; in percentages of sales—or costs).
5. Collections (total; percentage of sales; by territories).
6. Outstanding obligations (total; by percentage of sales; by territories; overdue).

³ "Research is Better Than Tradition," *Printers' Ink*, August 4, 1927.

⁴ McCULLOUGH, JAMES H., "Nutshell Reports for the Boss," *System*, 1918, p. 717.

7. Goods returned (total; by lines; by territories; by percentage of sales).

8. Balance sheets (assets; liabilities).

9. Financial statement (periodical summary of operations).

10. Trade and business conditions (crops; money market; new inventions; developments in trade customs; styles; transportation; and weather conditions).

11. Efficiency of employees (by profits, departments, percentages, on standards of work or conduct and complaints).

12. Advertising (total; by departments; by medium; by results).

13. Cash (receipts; disbursements; anticipated payments).

14. Rate of turnover (in total business, by departments); by lines; number of days' sales on ledgers.

15. Production; by amount—finished, under way, and not started; time lost, by total cost; by unit cost; by labor costs—direct or indirect; by material cost; and by overhead.

16. Mark ups and mark downs (total; by departments; by percentages).

The list includes only what the "boss" needs to know at stated periods, and the reports furnishing this information, as has already been pointed out, are classed as routine reports. Besides these, there are problems of a special nature constantly confronting management which take on greater or less importance intermittently.

Of those absorbing the attention of management today, some of the most outstanding problems are:

1. Those dealing with the product.
2. Those dealing with the market.
3. Those involved in the financing of the enterprise.
4. Those dealing with the organization structure.
5. Those underlying the development of the personnel.

How comprehensive is any one of these problems is suggested by the problems which office management alone includes: ⁵

1. Methods of laying out office.
2. Filing methods.
3. Training employees.
4. Setting standards for routine work.
5. Increasing efficiency of correspondence.
6. Methods of operating steno-dictating departments.

⁵ MATHEWSON, PARK, "Research and Analysis for Executives," *Administration*, 5: 14.

7. System methods and forms.
8. Symbolic systems.
9. Testing and inquiry into office equipment.
10. Efficiency conferences and committee methods.
11. Standardization of equipment.
12. Handling mail.
13. Handling callers.
14. Comparative tests of fountain pens vs. slip pens.
15. Lighting and ventilating.
16. Bonus and contest plans.
17. Tests for employment.
18. Office work speed.
19. Methods of breaking in men and following records.
20. Time studies.

PRESENTATION OF THE MATERIALS OF RESEARCH TO MANAGEMENT

The report to management embodying the findings of research, an analysis of these findings, and a recommended solution of a business problem, contains the essentials of such analytical reports as have been treated in detail in the chapters on the presentation of the research material in writing. Of the many essentials such as readability, judicial qualities, etc., two have been designated by an efficiency expert in industrial engineering as needing greater attention than they now receive. These are: *good organization*, and *persuasion* in the presentation of material. Both of these essentials have been discussed, *organization* in the chapter on outlining, and *persuasion* in the chapter on style. Since, however, some writers receive help in organizing the material of their own reports from following outlines of other people, two outlines in skeleton form are presented based on reports written by an efficiency expert in industrial management for various clients; and two by research divisions to executives within organizations. A letter of transmittal for an internal report, in the field of organization and operation, is presented partly because it gives a conclusion and recommendation resulting from an investigation and partly because it is an example of good style in a letter of transmittal.

Outline I

Memorandum of Financial Department, ——— & Co.

SECTION I

ORGANIZATION OF FINANCIAL CONTROL

Introduction

1. Board of Directors
2. Finance Committee
3. Responsibilities of Financial Department
 - A. Duties of Treasurer
 1. Formulation of general financial policies for the consideration of president and Finance Committee
 2. Preparation of financial plan to carry out policies adopted
 3. Handling of bank relations
 4. Handling of cash receipts
 5. Control of investments in
 - a. Inventories
 - b. Properties
 - c. Stocks and bonds

Body

4. Formulation of Financial Policies
5. Preparation of Financial Program
6. Handling of Bank Relations
7. Handling of Cash Receipts and Disbursements
8. Control of Inventories
9. Control of Expenditures for Protection of Property
10. Control of Financing through Stocks and Bonds
11. Credits
12. Miscellaneous Duties
13. Internal Organization of Department
14. Cashier's Division
15. Credit Department

SECTION II

1. Procedure and Reports
2. Procedure of the Financial Department.

Outline II

Preliminary Memorandum on Organization and Methods of ——— Co.

SECTION I

RECOMMENDATION ON ORGANIZATION

- A. Present organization
- B. Recent development in organization
- C. Suggested organization of general offices.
 - 1. Vice-president in charge of plant
 - 2. Vice-president in charge of mines
 - 3. Vice-president in charge of sales
 - 4. Treasurer
 - 5. Comptroller
 - 6. Traffic manager
- D. Organization for research
- E. Personnel problems

SECTION II

RECOMMENDATIONS ON EXECUTIVE REPORT

- A. Uses of Reports: Executives can obtain information concerning activities under their jurisdiction
 - 1. By personal observation
 - 2. By contact with subordinates
 - 3. By use of reports
- B. Need for executive reports in your company
- C. Uniformity of reports
- D. Requisites for satisfactory reports.
 - 1. Summarized information
 - 2. Show tendencies
 - 3. Uniform for all executives so far as possible
 - 4. Comparisons between estimated and actual performances
 - 5. Standards by which to be judged.
- E. Suggested procedure for developing executive reports.

The following two outlines are illustrative of informal inter-organization reports:

I. Outline of an Inter-Organization Report Suggesting a New Method in Office Routine

- 1. Summary containing recommendations
- 2. Statement of present conditions
- 3. Definite suggestions as to changes together with reasons
- 4. Forms and written instructions

II. Outline of an Inter-organization Report on Branch Divisions Sales Policy

History of commission and procedure, discussed with Mr. ———
General Situation
Past Plan of Operation—all branches separately
Trouble with it
Future result
Solution Suggested
Offers man to fit suggested job
Recommendations
Summary—sentence each.

This letter of transmittal from a department head to the general manager is typical:

Letter of Transmittal

DEAR SIR:

We have made a study of the wiring inspection methods as a part of an assignment received from Mr. Smith to suggest ways and means of reducing utilization expense.

Our study of the inspection methods shows that the number of inspection calls could be considerably reduced without delaying service or easing up on requirements.

We are submitting suggestions for reducing the number of inspection calls, and while it is difficult to estimate the saving that might be effected, we believe that the calls could be reduced to a point where the saving would reach \$3500.00 a year in districts C and D.

We shall be glad to discuss the report with you and render any assistance you may desire in the introduction of the suggested changes.

Yours respectfully,

APPENDIX III

ENGINEERING

Although this section is headed *Engineering*, this brief discussion and the suggestive outlines attached will be concerned with "applied" or "business" engineering reports, which are the result of research directed toward more or less immediate use in business and which are frequently read and acted upon by non-technical men.

Engineering reports are prepared for two types of readers—one that is sympathetic and one that is antagonistic. The first is the executive who welcomes the data and seeks to secure through them the answer to some problem. The second is found particularly in specification writing in which the report writer must be meticulously correct in every word and phrase so that nothing will be capable of two interpretations in case there is an attempt at evasion of contract.

The method of approaching an engineering problem involves little, if any, change in mental tactics from those employed in any other business research problem. The engineer is trained to approach his problem open-minded—not to work from a preconceived notion—and not to omit facts that fail to substantiate his theory.

A finer sense of accuracy is noticeable in engineering reports, but even this is largely due to the nature of the subject matter, which lends itself to greater accuracy. Other business report writers would welcome the same accuracy if the nature of their work permitted. But the report on the reaction of many people toward a certain kind of aluminum obviously cannot be reduced to the mathematical accuracy of the expansion of an inanimate object like a steel rail.

There are two methods of attacking any investigation: study all the work and ideas already known of the subject, or to make one's own investigation first and then test against that already

known. The engineer is more likely to use the second method than is the investigator in the field of finance or marketing, but the method is really used interchangeably in both fields.

In reality, the engineer follows the same procedure described under analytical report. He makes a complete study of the problem; the capacity of the prospective readers—their knowledge of the situation; the needs of the readers—whether they are investors, producers, etc.; makes a preliminary analysis; develops a working plan; collects his data—usually by experimentation; interprets and applies those data; arranges them, makes an outline, and writes his report. If his thinking has been clear, the expression will probably be clear. Painstaking detail is necessary to any good report. It is often more apparent in the engineering report, but not necessarily more essential to it than it should be to other types.

A definition adapted to “business” engineering is well stated in:

“Report writing may be defined as the art of answering responsively the question assigned in such a manner as to compel the non-technical mind to comprehend the conclusion intended.”¹

To which might be added “and, if desirable, to take action.” The business of a good report is to convey to the reader its content in clear, concise manner, thus conserving his time and energy.

Technical writing conveys information and influences the reader to adopt a definite mode of thought or action. In controverting many established theories, as the scientist necessarily does, one of his problems is to keep from capitalizing popular demand for sensations. In speaking of adapting the report to the reader in such a way as to secure action, nothing of such sensational nature is intended. Only accuracy of fact and impartial presentation has a place in any report, but adaptation in selecting and arranging those facts so that the reader can grasp them with the least mental effort is nothing but good judgment.

The expert engineer sometimes has to be careful not to permit himself to be influenced by his past experience to such an extent

¹ BREED, CHAS. B., “Engineering and Contracting,” 55: 88.

that it will unduly influence his conclusions in the report at hand.

The engineering writer must not only be big enough to distinguish between big and little things and properly evaluate each, but he must be qualified in many allied fields. For instance, in order to see, evaluate, and present all the possibilities of a problem, he may have to formulate the design and estimate the cost of construction. He must analyze and appraise the market, which in turn demands a knowledge of industrial and social conditions. Through all this maze of interlocking material, he must select and evaluate the important points, draw sound and definite conclusions, and prepare a clear statement covering the essential features proposed.

Versatility is demanded of the engineering report writer who may have to present one report of apparatus to the sales staff and another on the same apparatus to a prospective customer so that he will recognize a need for it. Instructions to the customer who has purchased, containing installation and operating information, or for ordering repairs and replacements, are little short of a straight report and employ the same principles.

In order to be of the most service to the reader, the engineer needs oftentimes to consider beyond the physical nature of the report. It is frequently desirable to include questions of administration, operation, economics, finance, relation to the community, etc., which means that the engineer submitting the report must be prepared in a much broader manner than one specialized field, that he must know the problems and people in other fields, and that he must be able to adapt his report to them. A certain amount of business training is a necessity for highly successful business or commercial engineering reports.

In absorbing technical research commercially, business has caused it to add to its former objective of contributing something constructive to society, that of increasing the earning capacity of corporations and individuals. Engineering substitutes exact methods for guesses and opinions. Because of the complicated business structure of today, business has taken over some of the methods of science and now we hear of "research" in marketing, advertising—in fact, in all fields of business. Although the methods and results are not as definite and unerring as in science, a constant advancement has been made.

Business research is found under various names—research laboratory, development, statistical, engineering, planning, standards, methods, market analysis, etc. In the ranks of business research are found directors, chemists, engineers, metallurgists, inventors, designers, experimental, testing, specialists in all divisions, proving ground workers, suggestion plan, etc., all requiring reports of some nature.

Under subject matter, engineering reports fall generally under public safety, convenience, economy, and construction. A suggestive list of types is water supply studies, traction tests, progress of work, inspection of work, repair work. Each field of engineering has different peculiarities of style in which the report is arranged, but the general type remains the same—that of the analytical report.

Presentation

Effective presentation of engineering reports is governed by the same principles as other reports, subject to natural peculiarities of subject matter. The nature of the commission, the subject matter, and prospective readers govern the presentation of the report. Next to the ability to handle men, the engineer needs skill in writing good reports—in conveying exact information by means of the written word. To perform a task is not enough—it must be presented in good form. The writer must be able to select the essential facts, attractively present them in the fewest words so that they will be capable of but one interpretation. Unnecessary words conceal rather than reveal facts. Some engineers attempt to use formulas, drawings, etc., in place of words. These things have their place, but they cannot be used alone. Moreover, all readers are not interested or convinced by diagrams.

Some research workers take the attitude that fellow engineers will understand regardless of the form in which it is presented. In business engineering, many readers are not engineers, and even if they were, it is a mark of courtesy to conserve their time and energy. Other engineers ignore English because it is a tradition to do so. With a changing social order this alleged tradition becomes a mark of backwardness, a mark which is being combated in all good engineering colleges today.

Good writing style is not merely expressing ideas but getting

those ideas across to the reader, not so that they will be admired but understood and acted upon if necessary. Fine phrases are not unknown to engineering reports, but are seldom needed. Direct, conversational style of writing that sounds spoken rather than written is the style that will cause a board of directors to approve the plans for a new plant.

Completeness includes everything done from which results or conclusions were obtained. The report, from which the following outline was taken, contained in detail—mostly in comparative chart form—results of a rather complete nature:

Locating a Factory ²

- I. Object
- II. Synopsis of results
- III. Introduction
 - A. Product—nature of it—quantity: present and future
 - B. Limitation—financial aid of cities not considered
- IV. Primary considerations
 - A. Market
 - B. Raw Materials
 - C. Labor
 - D. Transportation
 - E. Power and Fuel
- V. Secondary considerations
 - A. Legislation
 - B. Climate
 - C. Advertising Value
 - D. Financial aids
 - E. Banking Facilities
 - F. Water Supply
- VI. Distribution of product—local or national
- VII. Competition
- VIII. Population
- IX. Conclusions
- X. Recommendations

The following outline will illustrate the order of arrangement that presents the results first. It will be noted that the outline is, in general, the same as that fully discussed under the analytical report in Chapters XIII–XV.

² ANDERSON, A. G., "Solving a Factory Location Problem," *Industrial Management*, 70: 21, July, 1925.

Report on Apparatus³

- I. Object—Reason for the work
 - Ground to be covered
 - Authority
- II. Summary—Results obtained (no discussion)
- III. Apparatus—List of apparatus and instruments
 - Full description of them
 - Pictures and sketches to permit duplication
 - in order to judge appropriateness
 - identify instruments
 - replace set up to check results
- IV. Method—Of taking readings
 - Sequence of readings
 - Description in full
- V. Computations—State formulae
 - Explain symbols
 - Source of formulae
 - Units in which computations are expressed
 - Clear as to course, etc.
- VI. Graph of Result—Don't use scales not commensurate with probable accuracy
 - Scale easily subdivided
 - Keep curves separated
 - Indicate scale drawn to
 - Label curves in full
 - Give full title on each curve sheet
 - In general, use only one ink
- VII. Discussion of Results—Complete survey
 - Factors influencing
 - Reliability and comparisons
- VIII. Recommendations—As to changes in the future
 - Pursue associated idea
- IX. Original data—Include original or careful copy
 - X. Graph data—Steadiness of conditions
 - Interrelation
 - Establishing contacts
- XI. Bibliography

Informational reports, particularly regarding work under construction, are common to engineering. These, however, in each branch of engineering soon develop into a set routine and

³ ANDREA, W. C., "Report Writing," *Sibley Journal of Engineering*, 39: 386, October, 1925.

are usually forms to be filled in at definite times—daily, weekly, monthly, or at certain periods of the construction.

The following informational report on the progress of a concrete job is mailed on a postcard daily:

Daily Report⁴

For Walls—

1. Date..... Weather..... Temperature.....
2. Amount of excavating done
3. Amount of steel and forms placed
4. Number of footings concreted

For Floors—

1. Same
2. Centering erected
3. Form work completed
4. Number of stacks of column steel erected
5. Number and location of panels of floor concreted
6. When it will be completed
7. Add any unusual features or circumstances affecting progress.

The weekly report on the same job is partially presented in chart form showing last week's and the new week's work, the latter being in red ink, and the date of pourings. A space is provided to notify the office well in advance of needed supplies. The head draughtsman keeps jobs moving and cooperation is secured.

The following outline of the report on "Smoke Abatement and Electrification of Railway Terminals in Chicago" prepared under the direction of Mr. W. F. M. Goss, chief engineer, is indicative of the many and various units into which a subject necessarily has to be reduced before conclusions as a whole can be drawn. Mr. Goss had a staff of experts working under him on this report. The work of coordinating the mass of data submitted, drawing logical conclusions from them, and submitting the final report in readable form was a noteworthy achievement.

Only the main heads of this voluminous report are included here. The section numbers before each head, and page numbers following, indicate the number of paragraphs and pages used in elaborating each section. With all the subheads included, this outline would cover many pages.

Each section of this report is carried through to conclusions,

⁴ *Concrete*, 13: 131-132

and sometimes subsections are of such importance and length that they, too, are carried through to conclusions. As each new section is introduced, it is prefaced with any necessary definition, scope, purpose, etc. For example, paragraphs 101 to 101.09 may contain such preliminary explanation necessary to introduce the remaining 40 paragraphs.

Criticism of the outline might be made on the basis that the heads are too long to be easily read and that subordinate parts are not clearly marked. It must be remembered, however, that this report was made to serve as a record for many years and not to be read and acted upon immediately, and that this abbreviated outline omits subordinate parts.

Smoke Abatement

Contents

- I. Title Page
- II. The committee
- III. Expert Staff
- IV. Letter of Transmittal
- V. Table of Contents
- VI. List of 505 tables
- VII. List of 719 Illustrations
- VIII. Body
 - A. Introduction
 - B. Text
 - C. Summary and conclusions
- X. Appendix
 - A. Bibliography
- XI. Index

SMOKE ABATEMENT AND ELECTRIFICATION OF RAILWAY TERMINALS IN CHICAGO

INTRODUCTION

The City of Chicago

<i>Sec.</i>		<i>Page</i>
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1.02	Early history	1
1.03	Transportation problems	2
1.04	Territorial growth	2
1.05	Growth in population.....	3
1.06	Chicago as a manufacturing center.....	3
1.07	Chicago as a mercantile center.....	5
	etc. etc. etc. etc.	

PART I

The Necessity for the Electrification of Chicago's Railway Terminals

101.-101.49	Smoke abatement in large cities, domestic and foreign	27-80
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103.-103.05	Territory embraced by the committee investigation..	97-101
104.-104.19	Coal and coke consumption.....	103-127
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106.-106.07	Relative importance of the steam locomotive as a source of smoke	175-178
107.-107.07	Relative importance of steam vessels as a source of smoke	179-181
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109.-109.07	Relative importance of low pressure steam and other stationary heating plants as a source of smoke....	185-187
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Another useful engineering outline will be found in Chapter XII concerning a report on the installation of a water works system.

APPENDIX IV

FINANCE

A financial report is a statement of what an enterprise has accomplished over a period of time, or the result of an inquiry into the ability of an enterprise to earn money in the future, and this includes much more than the result of an accountant's audit.

The purpose of the report is to present to the reader all or part of the financial structure in which he is interested in a way that will be of the most benefit to him. Naturally this embodies more than a knowledge of accounting principles; it means in many cases the economic interpretation of those figures and principles.

Before the days of consolidations, income tax, and efficiency experts, a simple set of records was sufficient for the business man to keep his accounts straight, and if he was a good trader he probably made money. But now with overhead, involved credit structure, and narrow profit margins, industry must keep its accounts in such a manner that despite tangled threads of interest it can tell all the time not only where it is now but where it should be tomorrow.

But keeping these figures within the organization itself is no longer possible because, with the public the biggest investor in many large enterprises, the financial report of that public's business must be presented to it at regular and special intervals. Anything that depends upon the goodwill of the public must first secure that goodwill and then maintain it. On the whole, industry today has secured the goodwill of the public. To hold it in times of depression is another matter. It is a matter which will require publicity—not lip publicity, but that which appeals to the reason and is presented in a specific, understandable style.

As discussed in Chapter XV, many companies are already seeing the light and adapting their reports to the people reading them. Particularly is this the case when the figures make good publicity, which is good salesmanship. Figures not so favorable

to the company, when frankly explained, often gain the same results on account of the sincerity of the presentation.

For the purpose of adaptation, many corporations have adopted a style of "double reports" consisting of the audit or statement and a general discussion of the business—new acquisitions, additions, improvements, new markets entered, change of officers—things that will be understood by the layman and that will win his goodwill because he does understand them.

Consciously or unconsciously, the financial writer goes through the same mental processes as any other report writer of making a preliminary analysis, defining issues for the investigation and making a working plan, securing data, interpreting them and drawing conclusions, and then making an outline and organizing the material into a clear, concise report.

The following outline of a report prepared after an investigation of a public utility company indicates the extent of such work, and also the necessity for breaking the problem into small units.

Outline of an Investigation of a Public Utility Holding Company

- I. Title Page
- II. Letter of Transmittal
- III. Synopsis
- IV. Introduction
 - A. The rise of the public utility holding company
 - B. The Eastern Central Utilities company
- V. General Information
 - A. Incorporation of the Eastern Central Utilities Company
 - B. Acquisition of operating companies
 - C. Operating statistics of subsidiary companies
 - D. The management personnel
- VI. Description of assets and liabilities
 - A. The financial plan of the company
 - B. Nature of financial control of subsidiaries
 - C. Balance sheet of the E C U company
 - D. Balance sheet items classified
 - 1. Classification of assets
 - a. Investments
 - b. Current receivables
 - c. Cash
 - d. Deferred charges

2. Classification of liabilities

- a.* Long term liabilities
- b.* Short term liabilities
- c.* Preferred stocks
- d.* Common stock
- e.* Surplus

E. Description of capital stock

- 1. Common stock
- 2. 6% cumulative preferred stock (\$100 par value)
- 3. 7% cumulative preferred stock (\$100 par value)
- 4. \$6 cumulative non-par preferred stock
- 5. 7% cumulative prior lien stock (\$100 par value)
- 6. \$6 cumulative non-par prior lien stock
- 7. Summary
 - a.* Division between par and non-par stock
 - b.* Subscription privileges
 - c.* Restriction on issues
 - d.* Voting power
 - e.* Controlling interest

F. Character of Funded debt

- 1. Collateral loans
- 2. Three year 6% collateral notes
- 3. Ten year 6% collateral trust bonds
- 4. Three year 6% collateral gold notes
- 5. Five year 7% convertible gold notes
- 6. 8% secured gold notes
 - a.* Series A
 - b.* Series B
 - c.* Series C
- 7. Summary
 - a.* Per cent of underlying security
 - b.* Limitations on issues
 - c.* Callable date
 - d.* Tax provision
 - e.* Rate of interest
 - f.* Length of life

VII. Income and disbursements

A. Income of subsidiary companies

- 1. Source of subsidiary companies' income
- 2. Disposition of subsidiary companies' income

B. Regulation of rates

- 1. Rate increased

C. Earnings of the E C U co.

- 1. Source of income

- a.* Dividends and interest
 - b.* Income from engineering and other sources
 - c.* Underwriting subsidiary company securities
 - 2. Disbursement of gross income
 - a.* Administration expenses
 - b.* Interest
 - c.* Dividends
 - d.* Surplus
 - 3. E C U co.'s share of subsidiary surpluses
- VIII. Recapitalization and related subjects
 - A. Readjustment of capitalization
 - B. Methods of financing
 - C. Cost of capital
 - 1. Preferred stock
 - 2. Common stock
 - 3. Prior Lien stock
 - 4. Cost of borrowed capital
 - D. Dividend policy
 - 1. Common stock
 - 2. Preferred stock
 - 3. Prior lien stock
 - E. Values of capital stock
 - 1. Common stock
 - 2. Preferred stock
 - 3. Prior lien stock
- IX. Ratio analysis of the company
 - A. Net worth versus funded debt
 - B. Net worth
 - C. Borrowed capital, or long term debt
 - D. Preferred stocks
 - E. All stockholders' net worth
 - F. Long term debt to investments
 - G. Net worth to investments
 - H. "Common" net worth to investments
 - I. "Common and preferred" net worth to investments
 - J. "Common, preferred, and prior lien" net worth to investments
 - K. Return on average investments
 - L. Productivity of the company
 - M. Ratio of net corporate profits to average capital employed
 - N. Ratio of common stockholders' profits to "Common" net worth
 - O. Ratio of "all stockholders'" profits to "all stockholders'" net worth
 - P. Conclusion

Q. Ratio of income available for interest to interest charges

R. Current ratio

X. Conclusion

XI. Tables

XII. Charts

XIII. Maps

The following outline of an annual report issued prior to the regular stockholders' meeting is characteristic of a better-than-average report of the annual type. A variation of such a report when issued after the meeting is made only in the letter of transmittal. Some companies are content to place all the interpretation in the letter of transmittal.

Outline of an Annual Report

I. Title Page

II. Letter of Transmittal to the Stockholders

A. Notification of regular annual meeting

1. Time, place, etc.

B. Purpose of meeting

C. Notice and explanation of legislation to be considered

D. Notice of time of closing and reopening the transfer books of the Company.

III. Directory Page

A. Board of Directors

B. Executive Committee

C. Officers

D. Registrar of Stocks

E. Stock Transfers

IV. Condensed financial statement

V. Interpretation of General Operations for the year production

A. Gas and electric interconnections

B. Extensions, additions, and improvements

C. Coal supply

D. Improved commercial and service facilities

E. Sales information

F. Financial operations

G. Personnel

H. Relations with employees

I. Company awards

J. General promotions, deaths, etc.

VI. Certificate of Audit

VII. Detailed financial statement

VIII. Maps, Charts, etc.

IX. Company offices, branches, etc.

With the personalized interpretation in the beginning, and the detailed financial statement at the end, this report might be termed a "double report," the first part for the layman and the second for the technical financier. Needless to say, the average stockholder will gain a more far reaching idea of the company through the first part of the report than the last.

A few charts and graphs of simple construction may be incorporated in the interpretation when they aid the understanding, but a large number should be placed in the appendix. Simple comparative tables are valuable in the interpretation.

The interpretation may be presented by departments. For instance, the year book of Swift and Company has sections devoted to a discussion of hogs, cattle, oleomargine, marketing, and personnel.

The divisions of the annual informational report are more routine than that of the special analytical report. Units of the latter change to some extent with each individual problem, and making the proper divisions depends upon the ability of the investigator, the nature of the commission, and the purpose for which the report is to be used.

A financial report writer in making an investigation of a company preparatory to issuing stock or bonds will find it necessary to break up his problem into many units, of which the following outline is suggestive. A few of the units listed will sometimes be more applicable to stocks than bonds, and vice versa, but the general procedure is the same. This outline presents a commonly accepted form of arrangement.

Special Report

- I. Title page
- II. Letter of Transmittal (or Formal Introduction)
- III. Table of Contents
- IV. Synopsis
- V. Introduction
 - A. Authorization
 - B. Scope
 - C. Purpose
- VI. General Information
 - A. Market conditions and trends
 - 1. Business
 - 2. Territory

3. Summaries of financial conditions
4. Results as reflected
- B. History of general industry
 1. Past and present conditions
 2. Policies
- C. History of company under investigation
 1. Type of business
 - a. Products sold
 - b. Range of adaptability
 - c. Capacity of plant
 2. Location
 - a. Land or building—construction, occupancy, condition
 - b. Appraisals
 - c. Title
 - d. Transportation
 - e. Seasonal aspects
 3. When and where incorporated
 4. Holdings of the company
 - a. Amount of production
 - b. By-products, if any
 - c. Extent
 5. Organization facts
 6. Other investments
 7. Patents
 8. Tax exemption
- VII. Limitations
 - A. Indenture
 1. Rights, conversions, privileges, etc.
 2. Agreements
- VIII. Financial
 - A. Purpose of the issue
 1. Reason for further financing
 2. Why this method was selected
 - B. Valuation
 - C. Capital structure
 1. Type of bonds, due, rate, amount
 2. Preferred stock, par, rate, amount
 3. Common stock, par, amount
 4. Debentures, etc.
 - D. Dividend payments on all stocks and bonds
 1. Past
 2. Present
 3. Future (estimated)

- E. Earnings
 - 1. Net income
 - a. amount per share
 - b. comparative with other years
 - c. reasons—past, present, future
- F. Balance Sheet
 - 1. Assets and liabilities
 - 2. Book value
- G. Depreciation and depletion
- H. Goodwill
- I. Sinking fund
- IX. Situation in field affecting this investigation
 - A. General—such as recent improvements
 - B. Consumption
 - 1. Reasons
 - 2. Results
 - 3. Present contracts of this company
 - 4. Present contracts, if known, in the field
 - C. Exports and imports
 - 1. Conditions abroad
 - 2. Conditions at home
 - D. Price of product
 - E. Incidental factors
 - 1. Measures to aid situation
 - a. Curb over-production, etc.
 - 2. Mergers
 - 3. Rate regulation
 - 4. Marketing
 - 5. Competition
 - 6. Special features
- X. Personnel of management—age, history, character, ability, past record
- XI. Summary
 - A. Conclusions
 - B. Recommendations
- XII. Signature
- XIII. Appendix
 - A. Financial statement of company
 - B. Statement of subsidiaries and associated companies
 - C. Schedules
 - D. Maps, etc.

Naturally the order of arrangement of the points to be discussed varies with the business, class of readers, and adopted

style of the firm making the report. Each broker or bond house issuing financial reports with frequency and regularity usually adopts a style of material arrangement that best fits his product or type of investigation and then maintains that style so that constant readers will know immediately where to look for those items discussed that are of the most interest to him. Some readers of a broker's sheet depend as much on the general discussion as upon the appended balance sheet which they do not try to interpret. Unless the past history of the company has an important bearing on the present price of stock, this unit may be abbreviated to the average investor, but a complete report on a company made to brokers who are going to underwrite an issue should contain everything that might in any way be pertinent.

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